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Ontario. Legislative Assembly

SESSIONAL PAPERS

Volume XXXVII. Part VI.

First Session of Eleventh Legislature

OF THE

PROVINCE OF ONTARIO

67687
13/1/06

SESSION 1905

TORONTO:
PRINTED AND PUBLISHED BY L. K. CAMERON
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1905

WARWICK BRO'S & RUTTER, Limited, Printers,
TORONTO.

LIST OF SESSIONAL PAPERS.

PRESENTED TO THE HOUSE DURING SESSION.

ARRANGED ALPHABETICALLY.

TITLE.	No.	REMARKS.
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Agricultural College, Report	14	"
Agricultural and Experimental Union, Report	15	"
Archives, Report	49	"
Asylums, Report	38	"
Bee-Keepers' Association, Report	20	*Printed.*
Births, Marriages and Deaths, Report	9	"
Blind Institute, Report	41	"
Boundaries extension, correspondence	50	*Not printed.*
Bush, George, correspondence	53	"
Children, Neglected, Report	43	*Printed.*
Cohoe, correspondence *re* appointment	55	*Not printed.*
Crown Lands, Report	3	*Printed.*
Dairymen's Association, Report	22	*Printed.*
Deaf and Dumb Institute, Report	42	"
Division Courts, Report	33	"
Education, Report	12	*Printed.*
Education Department, Orders-in-Council	57	*Printed for Distribution only.*
Elections, Return from Records of General	46	*Printed.*
Entomological Society, Report	19	"
Estimates, 1905	2	"
Factories, Report	8	*Printed.*
Fairs and Exhibitions, Report	26	"
Farmers' Institutes, Report	25	"
Fisheries, Report	31	"
Forestry, Report	4	"
Fruit Experiment Stations, Report	17	"
Fruit Growers' Association, Report	16	"
Fumigation Appliances, Report	18	"
Game Commission, Report	30	*Printed.*
Gaols, Prisons, Report	39	"
Good Roads, Report	27	"
Health, Report	36	*Printed.*
Highways, Report	27	"
Hospitals and Charities, Report	40	"

Title.	No.	Remarks.
Indian Claims, North West Angle Treaty No. 3.	61	*Printed.*
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Insurance, Report	10	"
James Bay Railway route, correspondence	58	*Not printed.*
Judicature Act, Orders-in-Council	51	"
Labour, Report	29	*Printed.*
Legal Offices, Report	34	"
Librarian, Report	47	*Not printed.*
Liquor Licenses, Report of inspection	44	*Printed.*
Liquor Licenses Act, enforcement in N. Hastings	52	*Not printed.*
Liquor License Commissioners, appointment of, in E. Lambton	60	"
Live Stock Associations, Report	23	*Printed.*
Live Stock Registrar, Report	24	"
Loan Corporations, Report	11	"
Lunatic Asylums, Report	38	"
Mines, Report	5	*Printed.*
Mining Divisions, revised Regulations	56	*Printed.*
North West Angle Treaty No. 3, Indian Claims	61	*Printed for Distribution only.*
Prisons and Reformatories, Report	39	*Printed.*
Provincial Municipal Auditor, Report	45	"
Public Accounts, 1904	1	"
Public Works, Report	7	"
Queen Victoria Niagara Falls Park, Report	6	*Printed.*
Railway Legislation in U. States, Report	54	*Printed.*
Registrar-General, Report	9	"
Registry Offices, Report	35	"
River aux Raisin, drainage, correspondence	62	*Not printed.*
Road Making, Report	27	*Printed.*
School Practical Science, calendar	21	*Printed for Distribution only.*
Secretary and Registrar, Report	37	*Printed.*
Statute Distribution, Statement of	59	*Not printed.*
Temiskaming and Northern Ontario Railway, Report	48	*Printed.*
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LIST OF SESSIONAL PAPERS.

Arranged in Numerical Order with their Titles at full length; the dates when Ordered and when presented to the Legislature; the name of the Member who moved the same, and whether Ordered to be Printed or not.

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No. 1. Public Accounts of the Province for the year 1904. Presented to the Legislature, March 31st, 1905. *Printed.*

No. 2. Estimates for the service of the Province until the Estimates of the year are finally passed. Presented to the Legislature, 23rd March, 1905. *Not Printed.* Estimates for the year 1905. Presented to the Legislature, 7th April, 1905. *Printed.* Estimates (Supplementary) for the year 1905. Presented to the Legislature, 18th May, 1905. *Printed.*

No. 3. Report of the Commissioner of Crown Lands for the year 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 4. Report of the Clerk of Forestry for the year 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

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No. 5. Report of the Bureau of Mines for the year 1904. Presented to the Legislature, 6th April, 1905. *Printed.*

No. 6. Report of the Commissioners of the Queen Victoria Niagara Falls Park, for the year 1904. Presented to the Legislature, 31st March, 1905. *Printed.*

No. 7. Report of the Commissioner of Public Works for the year 1904 Presented to the Legislature, 31st March, 1905. *Printed.*

No. 8. Report of the Inspectors of Factories for the year 1904. Presented to the Legislature, 15th May, 1905. *Printed.*

No. 9. Report relating to the registration of Births, Marriages and Deaths for the year 1903. Presented to the Legislature, 31st March 1905. *Printed.*

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No. 10. Report of the Inspector of Insurance for the year 1904. Presented to the Legislature, 7th April, 1905. *Printed.*

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No. 11. Loan Corporations, Statements by Building Societies, Loan and other Companies, for the year 1904. Presented to the Legislature, 3rd May, 1905. *Printed.*

No. 12. Report of the Minister of Education, for the year 1904 with the Statistics of 1903. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 13. Auditors' Report to the Board of Trustees, University of Toronto, on Capital and Income Accounts, for the year ending 30th June, 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 14. Report of the Ontario Agricultural College and Experimental Farm, for the year 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

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No. 15. Report of the Ontario Agricultural and Experimental Union of the Province, for the year 1904. Presented to the Legislature, 3rd April, 1905. *Printed.*

No. 16. Report of the Fruit Growers' Association of the Province, for the year 1904. Presented to the Legislature, 12th April, 1905. *Printed.*

No. 17. Report of the Fruit Experiment Stations of the Province, for the year 1904. Presented to the Legislature, 10th May, 1905. *Printed.*

No. 18. Report of the Inspector of Fumigation Appliances of the Province, for the year 1904. Presented to the Legislature, 15th May. 1905. *Printed.*

No. 19. Report of the Entomological Society, for the year 1904. Presented to the Legislature, 3rd April, 1905. *Printed.*

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No. 20. Report of the Bee-Keepers' Association of the Province, for the year 1904. Presented to the Legislature, 12th April, 1905. *Printed.*

No. 21. Calendar of the Ontario School of Practical Science, affiliated with the University of Toronto. Presented to the Legislature, 3rd May, 1905. *Printed for distribution only.*

No. 22. Reports of the Dairymen's Associations of the Province, for the year 1904. Presented to the Legislature, 11th April, 1905. *Printed.*

No. 23. Reports of the Live Stock Associations of the Province, for the year 1904. Presented to the Legislature, 15th May, 1905. *Printed.*

No. 24. Report of the Registrar of Live Stock of the Province, for the year 1904. Presented to the Legislature, 15th May, 1905. *Printed.*

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No. 25. Report of the Farmers' Institutes of the Province, for the year 1904. Presented to the Legislature, 14th April, 1905. *Printed.*

No. 26. Report of Ontario Fairs and Exhibitions of the Province, for the year 1904. Presented to the Legislature, 3rd May, 1905. *Printed.*

No. 27. Report of the Commissioner of Highways, for the year 1904. Presented to the Legislature, 12th April, 1905. *Printed.*

No. 28. Report of the Bureau of Industries of the Province, for the year 1904. Presented to the Legislature, 15th May, 1905. *Printed.*

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No. 29. Report of the Bureau of Labour, for the year 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 30. Report of the Ontario Game Commission, for the year 1904. Presented to the Legislature, 9th May, 1905. *Printed.*

No. 31. Report of the Department of Fisheries, for the year 1903. Presented to the Legislature, 3rd April, 1905.

No. 32. Report of Commission appointed to enquire into and report upon the matters referred to in a Resolution of the Senate of the University of Toronto, passed on the 20th January, 1905. Presented to the Legislature, 23rd May, 1905. *Printed.*

No. 33. Report of the Inspector of Division Courts, for the year 1904. Presented to the Legislature, 3rd May, 1905. *Printed.*

No. 34. Report of the Inspector of Legal Offices, for the year 1904. Presented to the Legislature, 3rd April, 1905. *Printed.*

No. 35. Report of the Inspector of Registry Offices, for the year 1904. Presented to the Legislature, 18th May, 1905. *Printed.*

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No. 36. Report of the Provincial Board of Health, for the year 1904. Presented to the Legislature, 31st March, 1905. *Printed.*

No. 37. Report of the Secretary and Registrar of the Province, for the year 1904. Presented to the Legislature, 18th May, 1905. *Printed.*

No. 38. Report upon the Lunatic and Idiot Asylums of the Province, for the year ending 30th September, 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 39. Report upon the Prisons and Reformatories of the Province, for the year ending 30th September, 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 40. Report upon the Hospitals and Charities of the Province, for the year ending 30th September, 1904. Presented to the Legislature, 17th, May, 1905. *Printed.*

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No. 41. Report upon the Institution for the Education of the Blind, Brantford, for the year ending 30th September, 1904. Presented to the Legislature, 6th April, 1905. *Printed.*

No. 42. Report upon the Institution for the Education of the Deaf and Dumb, Belleville, for the year ending 30th September, 1904. Presented to the Legislature, 31st March, 1905. *Printed.*

No. 43. Report of Superintendent. Neglected and Dependent Children of Ontario, for the year 1904. Presented to the Legislature, 18th May, 1905. *Printed.*

No. 44. Report upon the Inspection of Liquor Licenses, for the year 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

No. 45. Report of the Provincial Municipal Auditor for the year 1904. Presented to the Legislature, 15th May, 1905. *Printed.*

No. 46. Return from the Records of the General and Subsequent Elections to the Legislative Assembly on 25th January, and 21st February, 1905, shewing:—(1) The number of Votes polled for each Candidate in each Electoral District in which there was a contest. (2) The majority whereby each successful Candidate was returned. (3) The total number of votes polled in each District. (4) The number of Votes remaining Unpolled. (5) The number of names on the Voters' Lists in each District. (6) The population of each District as shewn by the last Dominion Census. (7) Similar Statements as to any Elections held since the General Election. (8) A General Summary of Votes cast in each Electoral District. Presented to the Legislature, 22nd March, 1905. *Printed.*

No. 47. Report upon the state of the Library. Presented to the Legislature, 5th April, 1905. *Not printed*

No. 48. Report of the Temiskaming and Northern Ontario Railway Commission, for the year 1904. Presented to the Legislature, 10th May, 1905. *Printed.*

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No. 49. Report of the Archivist, Ontario, for the year 1904. Presented to the Legislature, 17th May, 1905. *Printed.*

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No. 50. Copies of correspondence *in re* the extension of the Boundaries of the Province. Presented to the Legislature, 27th March, 1905. *Not Printed.*

No. 51. Copies of Orders-in-Council in accordance with the provisions of section 187 of the Judicature Act, relating to commutation of fees of Public Officers. Presented to the Legislature, 31st March, 1905. *Not printed.*

No. 52. Return to an Order of the House of the twenty-second day of April, 1904, for a Return giving names of all persons convicted for

violation of the Liquor License Act in the District of North Hastings in the years 1902 and 1903, together with the amounts of fines and costs in each case and the dates when the same were paid. Presented to the Legislature, 31st March, 1905. *Mr. Pearce. Not printed.*

No. 53. Return to an Order of the House of the thirty-first day of March, 1905, for a Return of copies of all correspondence between the late Government of the Province, or any member or official thereof, and the Sheriff of the County of Lincoln with regard to the appointment of George Bush as Gaoler for the County of Lincoln. Presented to the Legislature, 3rd April, 1905. *Mr. Jessop Not printed.*

No. 54. Report of the Commissioners appointed to enquire into and report the various phases of Railway Legislation in force in the United States, affecting taxation of Railways. Presented to the Legislature, 7th April, 1905. *Printed.*

No. 55. Return to an Order of the House of the sixth day of April, 1905, for a Return of copies of all correspondence between the late Government, or any member or official thereof, and G. P. Wilson and Col. Cohoe, respecting the appointment of Col. Cohoe to the position of High Court Registrar. Presented to the Legislature, 7th April, 1905. *Mr. Fraser. Not printed.*

No. 56. Revised and amended Regulations for Mining Divisions relating to the Michipicoten and Temiskaming Mining Divisions. Presented to the Legislature, 20th April, 1905. *Printed for distribution only.*

No. 57. Copies of Orders-in-Council relating to the Education Department. Presented to the Legislature, 20th April, 1905. *Printed for distribution only.*

No. 58. Return to an Order of the House of the twelfth day of April, 1005, for a Return of copies of all correspondence, papers, documents, profiles and maps, between the Government or any Department thereof and the James Bay Railway Company, or any other person or persons, relating to the route of the James Bay Railway, from January 1st, 1904, down to April 1st, 1905, both days inclusive. Presented to the Legislature, 9th May, 1905. *Mr. Hoyle. Not printed.*

No. 59. Statement of distribution of Revised and Sessional Statutes, 1898 to 1904. Presented to the Legislature, 3rd May, 1905. *Not printed.*

No. 60. Return to an Order of the House of the 3rd day of May, 1905, for a Return of the copies of all correspondence, petitions or other papers in connection with the appointment of License Commissioners for the East Riding of Lambton. Presented to the Legislature, 9th May, 1905. *Mr. Auld. Not printed.*

No. 61. Return to an Address to His Honour, the Lieutenant-Governor of the fifth day of May, 1905, praying that he will cause to be laid before

this House, a Return of copies of the Statement of the Case of the Dominion, and the answer of Ontario to the Statement of Case of the Dominion, filed on Indian Claims arising out of the Northwest Angle Treaty, No. 3. Presented to the Legislature, 9th May, 1905. *Mr. Smellie. Printed.*

No. 62. Return to an Order of the House of the fifteenth day of May, 1905, for a Return of copies of all correspondence, papers, documents and memoranda relating to the drainage of the River aux Raisin, in the Townships of Osnabruck, Cornwall and Roxborough, in the County of Stormont, between the Commissioner of Public Works or his Deputy, in the years 1901, 1902, 1903 and 1904, and a Mr. Bell, C.E., Mr. Laird, C.E., Mr. Rankin Provincial Drainage Referee, and the Councils of the Townships of Roxdorough, Cornwall and Osnabruck; also, copies of all correspondence between the Hon. G. W. Ross and any of the above parties; also copies of any letters regarding this matter received by the Government from Mr. J. W. McCart and Messrs. McLennan, Cline and McLennan; also, copies of letters, authorizing the payment of Mr. Bell, C.E., Mr. Laird, C F., and several men working with them; also, a Return of the amount paid to each of the above during the years 1901, 1903, 1904. Presented to the Legislature, 23rd May, 1905. *Mr. Kerr. Not printed.*

ANNUAL REPORT

OF THE

Bee-Keepers' Association

OF THE

Province of Ontario

1904

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO
Printed by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1905

WARWICK BRO'S & RUTTER, Limited, Printers,
TORONTO.

To the Honourable WILLIAM MORTIMER CLARK, K.C.,

Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour:

I have the pleasure to present herewith for the consideration of your Honour the Report of The Ontario Bee-keepers' Association for 1904.

Respectfully sumbitted,

NELSON MONTEITH,

Minister of Agriculture.

Toronto, 1905.

Ontario Bee-keepers' Association.

OFFICERS FOR 1905.

President	H. G. Sibbald	Claude.
First Vice-President	R. H. Smith	St. Thomas.
Second Vice-President	F. J. Miller	London.
Secretary	W. Couse	Streetsville.
Treasurer	Martin Emigh	Holbrook.

Directors:

1. W. J. Brown, Pendleton.
2. J. K. Darling, Almonte.
3. M. B. Holmes, Athens.
4. R. Lowey, Cherry Valley.
5. J. W. Sparling, Bowmanville.
6. H. G. Sibbald, Claude.
7. J. Alpaugh, Galt.
8. James Armstrong, Cheapside.
9. R. H. Smith, St. Thomas.
10. G. A. Deadman, Brussels.
11. F. J. Miller, London.
12. Denis Nolan, Newton Robinson.

Ontario Agricultural College: Prof. F. C. Harrison, Guelph.

Auditors	J. L. Byer, Markham; James H. Thompson, Britannia.
Inspector of Apiaries	Wm. McEvoy, Woodburn.
Assistant Inspector	F. A. Gemmell, 293 Princess St., London.

FINANCIAL STATEMENT.

Receipts.

Members' fees	$155 00
Legislative grant	500 00
Affiliated Societies' fees	50 00
For use of stenographers' report	12 00
	$717 00

Expenditure.

Balance due treasurer, as per last report	$ 33	59
Grants to societies and fairs	200	00
Officers' salaries	75	00
Directors' fees and expenses	138	11
Postage, stationery and printing	31	64
Periodicals for members	100	75
Cost of reporting	60	50
Executive and Revising Com. expenses	35	10
Auditors	4	00
	$678	69
Balance on hand	38	31
	$717	00

Alpaugh, J., Galt.
Anguish, D., Scottsville.
Armstrong, James, Cheapside.
Allen, F. A., Ottawa.
Armstrong, John, Streetsville.
Bowling, Wm., Stratford.
Blake, Chas., Donaldson.
Bailie, R. C., Eglinton.
Blais, Adolphe, Glensanfield.
Brunne, Wm., Arnstein.
Bayless, Wm., Grandview.
Byer, J. L. Markham.
Brown, W. J., Pendleton.
Bulton, W. B., Ringwood.
Brown, Chas., Drumquin.
Brown, L. O., Toronto.
Butson, G. F., Toronto.
Box, Walter, Stratford.
Beaupre, M. C., Simcoe.
Bull, Jno., Uffington.
Brenton, F., Corbyville.
Burns, J. H., St. Marys.
Charleton, E. A., Ailsa Craig.
Comire, J. L., M.D., Yamaska, Que.
Chisholm, C. F., Wallbridge.
Currie, D., Nottawa.
Comire, A. O., M.D., St. Francis du Lac
Couse, W., Streetsville.
Colemain, J. R., Birr.
Craig, W. J., Brantford.
Colson, J. T., Purbrook.
Chrysler, W. A., Chatham.
Caldwell, W. G., Bolton.
Clark, J. W., Cainsville.
Darling, J. K., Almonte.
Deadman, Geo. A., Brussels.
Davidson, B., Uxbridge.
Dickenson, J. E., Jr., North Glanford.
Davison, J. F., Unionville.
Dalton, Edwin, Tansley.
Dickson, Alex., Lancaster.
Dickson, John, Dunvegan.
Evans, J. D., Islington.
Emigh, Martin, Holbrook.
Edmundson, C., Brantford.
Elliott, J. C., Carleton Place.
Fixter, John, Ottawa.
Ferrier, A. A. Osceola.
Fyfe, Albert, Harriston.
Grainger, E., Deer Park.
Gemmell, F. A., London.
Goodfellow, Alex., Macville.
Gibbs, Wm., Appin.
Grieve, W., Brantford.
Grossjean, J. L., Brookside.
Gemmell, John, Lanark.
Hand, E. G., Fenelon Falls.
Holmes, M. B., Athens.
Hayes, Oliver, Athens.
Holtermann, R. F., Brantford.
Hoshall, A. E., Beamsville.
Holt, Jas. E., Newton Robinson.
Heise, D. W., Bethesda.
Hurley, Jos. J., Brantford.
Hall, J. B., Woodstock.
Johnstone, Hy., Craighurst.
Jones, A. E., Queenhill.
Jeater, W. H., Kincardine.
Kirby, W. H., Oshawa.
Kennedy, J. A., Glen Roy.
Kalbfleisch, E., Tavistock.
Lafraugh, S. S., Scarborough.
Laing, Geo., Milton.
Longfield, D., Crampton.
Lowey, R., Cherry Valley.
Moore, Wm., Little Current.
Miller, E. E., Owen Sound.
Miller, F. J., London.
Morrison, R. A., Cataraqui.
Martin, James, Hillsdale.
Morrison, J. C., Guthrie.
Munroe, J., Munroe Mills.
McKnight, R., Owen Sound.
McEvoy, W. J., Woodburn.
McEvoy, Mrs. W. J., Woodburn.
McEvoy, Wm., Woodburn.
McGillivary, John, Oak Ridges.
McLaren, H., Dr., Toronto.
McLelland, Alex., Glencoe.
McRae, Bessie, Glencoe.
Nolan, Dennis, Newton Robinson.
Newton, John, Thamesford.
Newman, James, Cayuga.
Noble, A. H., Creswell.
Ott, Geo., Arkona.
Pettit, Morley, Belmont.
Patterson, R. L., Lynden.
Purvis, Frank, Sunderland.
Rogers, Mrs. S., Hollen.
Roaks, Henry, Napanee.
Reaman, Josiah, Carville.
Roach, R. W., Little Britain.
Roberts, Hugh, McIntyre.
Robinson, E. H., James Bay, B.C.
Smith, R. H., St. Thomas.
Scott, Mrs., Nottawa.
Switzer, J. F., Orangeville.
Schultz, H., Clontarf.
Sparling, J. W., Bowmanville.
Storer, Jas., Lindsay.
Shaver, J. H., Cainsville.
Smart, N. J., Collingwood.
Sibbald, H. G., Claude.
Saunders, J., Hornby.
St. John, Wm., St. Raphael.
Smith, David, Widder.
Taylor, R. M., Port Dover.
Thomas, Joshua, Arthur.
Trinder, Edwin, Simcoe.
Thompson, Jas., Britannia.
Timbers, John, Cherrywood.
Terry, T. J., Curran.
Tattersall, David H., Grandview.
Trevarrow, Miss M. B., Meadowvale.
Taylor, Alex., Paris.
Uttur, F. W., Merton.
Vincent, C. A., Picton.
Walterhouse, J. H., Toronto.
Wood, Geo., Wesley.
Wood, Samuel, Nottawa.
Wismer, Isaac G., South Cayuga.
Winger, Jesse, Carville.
Whiteside, R. F., Little Britain.
Wheeler, Lawrence, Brussels.
Walton, W. S., Scarboro' Jct.
West, John, Thornton.
Wilson, C. H., Hawkestone.
Wilson, W. L., Elmvale.
Wheeler, C., Brussels.

Ontario Bee-keepers' Association.

ANNUAL MEETING.

The Ontario Bee-keepers' Association held its twenty-fifth annual meeting in the Granite Rink, Toronto, on November 15th, 16th, and 17th, 1904.

The Secretary read the minutes of the twenty-fourth annual meeting, held at Trenton, which were confirmed.

PRESIDENT'S ADDRESS.

By J. W. Sparling, Bowmanville.

It is with pleasure that I greet you at this, our annual convention. This meeting marks the quarter century of the existence of this Association, and while these meetings are primarily for the purpose of business and mutual instruction, the social feature is one to be by no means disregarded.

A winter of great severity and very heavy loss of colonies to many bee-keepers, has been followed by a summer, on the whole unfavorable for honey production.

In furtherance of the suggestion thrown out by Mr. James, the Deputy-Minister of Agriculture, at our convention held at Trenton, your Executives were requested to meet committees of the Fruit-Growers' and Florists' Associations to arrange for a joint show of "Fruit, Flowers, and Honey." Messrs. Couse, Sibbald, Smith and myself met these representatives in this city. After some discussion we were offered $200 in lieu of our share of the receipts, the other societies to assume all liabilities for fitting up the rinks, furnishing music, heating, lighting, printing, etc.

At a meetng which your Executive held subsequently to arrange rules for the Show, prize list, etc., it was carried, subject to the approval of the Directors, that $50 be granted by this Association towards the prize list.

Several matters of importance laid over from our last meeting are to come before you,—the suggested decrease in the number of Directors being one. Whether the number of Directors can be reduced with advantage is worthy your serious consideration, and I trust will be considered solely on its merits. Another matter of the first importance for your careful deliberation will be the "Amendments to the Foul Brood Act" passed at our last convention. In this connection I might say that during the last session of the Legislature, Mr. Dryden requested Messrs. Hall, Crysler, Couse, and myself to meet him to confer regarding those amendments. Mr. Hall, owing to illness, unfortunately was unable to be present.

At our meeting we found Mr. Dryden most sympathetic and anxious to do anything to meet our wishes that might promise to be for the advantage of bee-keeping. He doubted the wisdom of the amendments as drawn, and pointed out that we were handing over to the local Associations, without retaining any control, the power to expend the grant made to our Association, and advised that we, as the parent society, should keep the control in our own hands.

After a very free discussion we recommended that the amendments be not brought before the Legisalture, but be printed in our annual report in order that the members give them further consideration, and that we might bring them before our next meeting for discussion.

This question of Foul Brood, I consider one of the most important before us. In a matter of so great importance, it is unfortunate that we have no record to enable us to arrive at a conclusion as to what progress is being made in eradicating the disease in the Province. The question is—are we making progress or merely "marking time."

I have pointed out to our Inspector that his reports convey little information in this regard and have suggested that he give the work done, by counties, number of apiaries inspected in each county, number in which disease was found, number of colonies inspected in each apiary, and number diseased.

In this manner we could gain some idea as to what progress is being made. A plan which I would recommend, would be to require the Inspector to keep a record book for the Executive of our Association, giving county and apiary inspected, date of first inspection, number of colonies in apiary, number inspected, number found diseased, date of second inspection and conditions in which then found.

In this manner we would have a permanent record and could see what was being accomplished.

The practice of making complaints regarding inspection to the Department of Agriculture is one, I think, to be deprecated. It is an annoyance to the Department and a disparagement of your officers who are entrusted with the direction and control of the Inspector, who is the officer of this Association. With us lies the power of appointment and dismissal; therefore, I consider this as the proper place in which to bring complaints, or, to your officers.

The programme which is before you is, I think, an attractive one, and I trust our deliberations may be pleasant and profitable.

EXTRACTED HONEY.

By Morley Pettit, Belmont.

The main products of our industry are comb honey and extracted honey, and in this country we produce the latter much more extensively than the former. It will be seen, then, that my subject is almost as broad as the business itself. It naturally falls into two main divisions, namely, "The Production of Extracted Honey," and the "The Care and Sale of Extracted Honey."

The quantity and quality of honey produced depends on: (1) weather; (2) locality, and (3) bees.

(1) Weather is beyond our control; but a careful study of conditions extending over several years enables one to forecast with some degree of accuracy and plan operations accordingly.

(2) Locality must be chosen and studied with equal care. The nature of soil, flora and climate are of the utmost importance. The soil should be moist, though not cold, and flora of the honey-bearing varieties. It is desirable to have honey coming from early spring until late fall, with two or three sharp intermissions when bees will kill drones and lose the desire to swarm.

(3) I spoke of weather, locality and bees, meaning by the latter: (*a*) race or breed of bees; and (*b*) condition of bees. There are three races of bees, which play an important part in Canada. Italians, Carniolans, and Blacks. Black bees are the most common, and have their good qualities and their champions. They are, however, too excitable to be handled comfortably, and do not defend their hives well from robber bees and moths. The Carniolans are hardy and very prolific. They build up rapidly in spring; but are great swarmers. The Italians are quiet and good workers, defend their homes well, and are not so much inclined to swarm.

The condition of bees would include style of hive and management. As we strive for uniformity of hives in the apiary, or set of apiaries, so, throughout the Province, country, and bee-keeping world the standard hive should as far as possible be adopted. That is the Langstroth hive. For the production of extracted honey I prefer the 12-frame Langstroth with supers of the same size. A good queen will occupy this brood chamber with brood until the fall flow, when she will slacken her operations enough to allow planty of winter stores to be crowded in at the sides.

There is nothing about a hive so important as the queen. She is the heart of the colony. From her comes the life-blood, as it were, the young bees to take the place of those which are wearing out and dying. With a good vigorous queen the brood chamber is kept full of brood in all stages, from the eggs to the young bees emerging from the combs. A populous energetic colony is assured, ready for any honey-flow that may come. A poor queen allows the circle of brood to become smaller and smaller, and the bees get "lazy" according to the old idea. That is, they dwindle in numbers, lose ambition and store but little honey. The sooner such a queen is replaced the better. But the thing most to be dreaded is queenlessness. The bees are working and growing old while none are hatching to take their places. The combs of the brood chamber which should be bright and filled with eggs and brood take on a forsaken appearance, and soon become choked with pollen and honey. I am convinced that if it can possibly be avoided a hive should not be one week without a laying queen at any time. With the present scientific methods of queen-rearing, and the low price at which queens can be obtained, one should always have a few extra queens of his own rearing, or coming by mail, to use in emergencies. The queen condition of every colony must be carefully watched at all seasons of the year, but particularly in preparing for winter.

The year-round management has a direct bearing on the amount of honey produced. During the fall flow every stock is assured a good queen, good worker combs in the brood chamber, and plenty of stores for winter. In preparing for winter, remember, first, that in cold weather bees must supply their own heat to keep the hive at a living temperature. Second, they also must breathe like any other animal. Third, their breath is laden with moisture. Fourth, as in any other city of 30,000 to 50,000 inhabitants the death-rate is considerable.

The spring management is quite as important as the winter. It is then the breeding up for a honey-flow is done, and two points particularly must be observed. By all means provide plenty of stores and conserve the heat of the hive. By the beginning of fruit bloom most hives should be ready for a super. At the opening of white clover and alsike in June the dark honey of the previous fall and present spring should all be removed as far as practicable from both super and brood chamber. Then put in wedges to enlarge the entrance, and put on two supers containing eleven full Langstroth combs each, with excluder to keep the queen in her place.

The month of June is spent struggling with the swarming problem. By all means, so far as in you lies, hold you stocks together and allow no swarming. With plenty of extracting supers the tiering up system is more profitable, as by giving two or three supers to each hive extracting may be postponed until the height of the warming impulse is past. Then an adequate gang of men taking off from 2,000 lb. to 3,000 lb. daily can soon extract the honey. The needed machinery consists of bee-hats, smokers, and brushes, a light cooper's hatchet for prying and scraping, a wheelbarrow with smooth tight bottom and rubber cloth for the yard. The extracting-room should be tight enough to keep out bees; but if such a place is not at hand the smoke from one or two smokers in the room will help considerably to keep them out. This last season I used a 6-frame reversible extractor, and now would buy nothing smaller. It is placed on three legs, high enough to deliver the honey into a barrel, and has inside a device which strains the honey before it goes into the spout. This arrangement, for which I am indebted to Mr. R. F. Holtermann, I have found to be a great saving of time and labor. The can for cappings consists of a square galvanized iron can, large enough to hold all the cappings two or three men could take off in a day. Fitted within this can is another, with a perforated steel bottom to hold the cappings up six or eight inches from the bottom, and allow them to drain. Wooden crossbars on top support the combs being uncapped. The knives are kept particularly sharp, and in all our operations we study the quickest and easiest way of doing things.

All white honey should be removed by the first of August to avoid any admixture of dark honey. Owing to the great affinity which honey has for moisture it is better, if possible, to extract on drying days. The process of uncapping and extracting exposes so much surface of honey to the air that saturated atmosphere would thin the honey considerable. In no case should honey be extracted during the honey-flow, unless three-quarters capped. It should as soon as possible be put into the packages in which it is to be sold, and sealed up. For honey exposed to the air not only absorbs moisture and becomes thin and watery on top; but it loses a certain amount of the delicate flavor and aroma which it has from its native flowers. This matter of the care of honey deserves attention. The producer should understand thoroughly the nature of honey, what treatment will benefit and what will injure it. Then seek at all times to educate buyers in this line. I might mention a few points. Honey is first nectar of flowers. Bees gather and ripen it by evaporation in the hive. The latter process is dependent on the weather. In dry weather it is ripened quickly and capped. In damp weather little capping is done. In our climate honey extracted thin can seldom be thickened by an process which will not injure flavor and color. The point to be made is that honey should be well ripened by the bees, then extracted, dry, and sealed up as soon as possible.

The natural condition of honey is first liquid, then crystallized. As agitation hastens crystallization in a saturated solution so it hastens the granulation of honey. Stirring, straining, dripping through cappings, the jar of machinery, changes of temperature which cause contraction and expansion— all hasten granulation. To repeat the comparison, as one crystal dropped into a saturated solution of a salt causes the whole to crystallize quickly, so a few grains of honey left in the combs or cans from last year, or mixed in the honey, make it granulate sooner than it otherwise would.

As honey is a natural product and not a manufactured one, it should be sold in its natural condition. Many prefer it liquid, because they do not understand that it should granulate. As we desire to educate the public to eat

more honey, we should teach them that its natural condition is granulated. Of course, we must give the buyer what he wants, but should use our influence to make him want granulated honey. The package must be chosen to suit the trade. For liquid honey, glass seems to be preferred. For granulated honey use tin, wood or paper, but not glass. Cultivate the home market. See that every house is supplied. Further points which I have missed will no doubt be brought out in the discussion.

The points I would emphasise are: In the production of extracted honey study your weather, climate, and locality; choose the best breed of bees and the right style of hives, and keep both in extra condition the year round. Give special attention to the queens and the wintering, and allow no natural and as few as possible artificial swarms. Do not extract honey until well ripened; then seal it up as soon as possible. Study short-cuts in working. Study your market. Sell to the best advantage possible, and make good use of your money when you get it.

Mr. R. H. Smith (St. Thomas): One of the most important things we have to consider to-day is the production of extracted honey, if we want to increase our trade or hold the trade we have. You will notice a great difference probably between Mr. Pettit's advice and that very often given through the Bee Journals. We often hear of large producers advocating short-cuts to produce large quantities. They may have a method of producing large quantities and also of good quality, but unfortunately there are a great many bee-keepers, especially beginners, who want quantity but have not the artificial facilities for producing quality, and very often these articles are adapted for a different climate, probably, from this. I notice that Mr. Pettit has laid stress on the importance of climate and the state of the atmosphere at extracting time. What would be suitable for a dry climate like Colorada or Texas, or some of the eastern countries, is not at all suitable for this Province. We have had some little experience with honey produced by bee-keepers who do not give it proper attention in the way of ripening. I have known bee-keepers who brag of how much they can extract in a day. It is not a good thing to brag about, I think, because usually you will find there is very little of that honey which is capped. Many think it can be run into a tank and artificially ripened, but that is practically impossible in this climate. As Mr. Pettit says, the proper way is to have it properly ripened in the hive, and seal it up as soon as possible. It is not necessary for it to lie in tanks; it only gathers moisture and depreciates more or less, even in dry weather. You will find a different grade of honey taken from the bottom of a large tank from what it is at the top. I have a sample of honey with me which I will bring up at the next meeting, that I bought among a lot of honey supposed to be No. 1. There is a great difference between what people call No. 1 honey, and this sample is an illustration of it. Not only is it thin, but it is inclined to sour. If there is one thing that will destroy or spoil the demand for extracted honey it is this same honey. Of course I know there is a certain class that caters for the confectionery trade. They think anything is good enough for the confectioner, and very often the buyers for the confectionery houses do not know the difference. It is the price and color that governs them. It is really not fit for table use, as it is not real honey at all; it is only partially evaporated nectar. Mr. Pettit's advice is as sound as anything I know of on the production of extracted honey. I do not know that I can add to it very much. The plan of taking it off not later than the first of August is a good one. There are very few localities where you get a fall honey equal to clover and basswood, and therefore the sooner the light honey is taken off the better, after it ripens.

Mr. Holtermann: There has been one point brought out here in connection with the production of extracted honey, and that is the thought that the proper place to ripen honey is in the hive, not in tanks. The present method generally, I believe, is to store the honey in tanks and leave it there, whatever the object may be, whether for ripening or otherwise. I am thoroughly satisfied if we could impress upon the bee-keepers generally throughout the country that honey should be ripened before it is taken from the hive, our honey which has already a very good reputation would have a much better one. As has been stated, in our climate, with the amount of moisture we generally have, honey depreciates and becomes thinner rather than ripens through exposure to the atmosphere, and bee-keepers should store their honey in vessels that can be closed up and made air tight.

Mr. Smith: It is a common practice among a certain class of bee-keepers to use merely one super for storing, and they think when that is full and is just beginning to be capped, that that is the time to extract. As you understand it is almost impossible to get a good class of honey with one super, because a good colony will have that super filled with raw nectar, and it will be in the process of evaporating and they will be adding to it from day to day, whereas if they had a super added underneath the first one the ripening process could go on with abundance of storage room to keep them going. A good colony would fill up a set of combs in two days at least, and what are we going to do while that is ripening? I know some bee-keepers who think that one super is all sufficient, and yet they wonder why they do not get the yields that others do who use a larger storage capacity.

The President: The point brought out by Mr. Smith is an important one, and it is worthy of attention.

Mr. Sibbald: I thought that was a very good paper. Mr. Pettit has covered all the ground, and explained everything, and I think any of us who listened to his advice and will practice it will have good honey. It is important to take into consideration the all year round management. We must take care of the bees in the fall, the winter, the spring, and the summer in order to take a good crop and have good honey. The point Mr. Smith just spoke of is a pretty good one generally, but I think to raise a super on a small poor colony it would not get sufficiently ripened unless there are plenty of bees in the colony to cover it. What I mean is, if a colony were a little weak, and we were to raise the super up and put another one under, the top one would not get ripened very well.

Now, as to the importance of queens mentioned in the paper, it is very important to have a queen all the time. If you have a hive that is queenless through the summer time it will not be a good colony through the winter, and if it is queenless or has a poor queen in the spring it will not be any use for the honey harvest.

As to the locality, of course, a good many of us have to keep bees where we live, or move them. We do not like to move, and we have got to make the best we can out of the locality. It is a very good thing to study your locality, and get your bees strong for the main flow of honey. I do not think the paper needs very much discussion. It covered all the ground. However, I would not like to see you all get twelve frame hives.

Mr. Pettit: In connection with the point that Mr. Sibbald brought out about not putting two supers on a weak stock, let me say that in my paper I advocated the two supers as Mr. Smith emphasised; but where you have not enough supers, or where the stock is rather weak and you have only one super, a good plan would be to extract a third or half of the best capped combs from the middle of the super, and then crowd the remaining combs

to one side and put the empties at the other side. The next time coming around to extract you will find that the bees have been storing in the empties and finishing the ones you left at the first extracting, and this is the next best thing to having two supers.

Mr. McEvoy: Do you consider you can get as good a quality of honey from thirty-six frames; that is a twelve frame brood chamber and two supers above with a medium swarm as you could from an eight?

Mr. Byer: There is one point I believe that has not been brought out in this paper or the discussion which it is not well to overlook. There seems to be a prevailing impression not only among beginners, but also among older bee-keepers, that by extracting sooner we get a whole lot more honey. I think Mr. Alexander, of New York, in the "Review," claimed that by extracting before the combs were capped over he would get about one-third more honey. No doubt a number of you have read an article in the "American Bee-Keeper" by Mr. Poppleton. He claims that there is nothing gained by extracting honey before it is ripened. If that is the case it is something we should acquaint ourselves with. It is a very important question.

Mr. Holtermann: The gain is not in the increased amount of honey, but in giving your bees room.

Mr. Armstrong: Reference was made to extracting from a weak colony or adding another story before it was completly capped over. My method is, as soon as I find a case of that kind, and it is not ready for extracting, I take the combs from that colony and shake the bees off and place them over one of my strongest colonies and give them more space.

Mr. Byer: Mr. Poppleton claimed that there was no appreciable loss in the weight after the first night. That perhaps in the morning there would be three or four pounds less than in the evening, and if that was a quiet day, and the bees got out to get more nectar, there would be no further loss.

Mr. Pettit: I will answer Mr. McEvoy's question. There is no use taking a twelve quart pail to milk an eight quart cow, but I would prefer all twelve quart cows.

Mr. McEvoy: It was not the quantity but the quality. You take a twelve frame brood chamber, you put two sets of twelve above that in a moderate honey flow, and you take an eight frame Langstroth, two of them above an eight frame—which of these will you get the best quality of honey in?

Mr. Pettit: If your stocks are good you want a hive that will hold the honey.

Mr. McEvoy: I am talking about quality not quantity.

The President: Why put on thirty-six frames in a moderate or in a poor honey flow? A man will not do that. If the honey is not coming in he is not going to give an immense quantity of room.

Mr. McEvoy: If you are going into business extensively in out-apiaries you cannot always go there and put a super on just when you want to, and do you not think these fellows who are going in for large hives and tiering up, if they overdo it, will get rather a poorer instead of a better quality.

Mr. Holtermann: I would like to ask Mr. McEvoy if he were running out-apiaries, and he has had a small hive would he not overdo by giving them a little too much room than by giving them too little and have swarms come out.

Mr. McEvoy: I am not talking about quantity. It is still about quality.

Mr. Dickinson: I do not see that we should all be guided by men running out-apiaries. There are a lot of bee-keepers in this audience that do not run out-apairies. If we can look after our eight or nine-frame hive,

and get more honey than we can from a twelve frame hive, why should not we do it? Possibly we run a twelve-frame hive, because we have not time to handle our bees right. I do not know, but it seems to me that it is no trouble at all to get plenty of room for a small colony by tiering up. Three times nine is twenty-seven. In a nine-frame hive that is twenty-seven combs. I think much can be accomplished unless you are an out-apiary man and have got two or three yards, and I would not say but what twelve-frame hives might be right then.

Mr. Holtermann: The great secret in my estimation in the successful production of extracted honey is to keep your bees together. If you have got strong stocks, and they get out early enough, you are bound to get whatever is going. I cannot see why there should be any difference in quality, because if you keep your bees together there will be more bees in that larger hive, and they will cover more of the combs. They wil ripen it just as well, and, perhaps better, than if a stock would swarm; and you know when it swarms a great many of the old bees leave the hive and leave the extracting supers only partially covered with honey. If you can keep your stock from swarming I believe the tendency is to keep your combs in which honey has been stored better covered and you will have a better quality. If there is any difference it is in favor of the hive which is larger, and in which you can keep your bees together.

Mr. Byer: Don't you think in the case of a summer season like we have had this last season with so many extremely cold days and damp nights, with a weak stock if you tier up, they would desert that and go to the brood chamber, and wouldn't there be a tendency for the honey to take on a little moisture? In the fall of the year we know the honey in the hive is sealed over and it is not nearly so thick as in the summer.

Mr. Holtermann: If the temperature is 90 degrees and you have filled the upper story in that hive, and you have an eight frame hive when the temperature drops to 60, would not the bees draw down just as much in proportion in the smaller as in the larger hive?

Mr. McEvoy: I think you will find you are pretty badly knocked out if you test that.

Mr. Sibbald: I would like to answer the question for Mr. Holtermann, because I do not really believe in a big hive. I order to keep the bees from swarming you must not let the brood chamber get clogged with honey, and in a large hive honey is more apt to be put to the side than to the top, and it is impossible to make the division between the brood and honey, and just where it ought to be. If we have a small hive—eight or ten-frame, and I would prefer a ten-frame—an ordinary queen can use that brood chamber, and we can work the brood right up to the top bar, and when we put on our top story we haven't any honey below. Just as soon as they fill the top story, we break the division again, and put another one in. So I claim we can control swarming very much better with a smaller hive. As to the ripening of honey and a good quality of honey, unless we can make our bees crowd the honey up they will never ripen it,—if they have any amount of room. I have noticed towards the end of the season that I will find some that is scattered here and there and all over, I never get good honey that way; it is always thin. If they had to put all that honey into one or two frames they would look after the ripening of it some way or other. You see the difference between the large and small hive.

Mr. Holmes: This is a topic of the very utmost importance, especially that feature of it when you are discussing the size of hive, and it occurs to me that this special matter of the size of hives should not be dropped just

at this juncture; that it should be if possible, threshed out to a finish, so that it might be known what size of hive is actually recommended by this Association. (Laughter.)

Mr. ARMSTRONG: How do you handle your honey after you extract it? Do you approve of sealing it right up in cans or jars at once?

Mr. PETTIT: Yes. I tried to emphasise that in my paper. One of the most important points in the whole subject was to seal up the honey as quickly as possible after it is extracted. This six-frame extractor that I spoke of delivers the honey into barrels, and as soon as the barrel is full the bung can be driven in, and the honey is practically air tight. The point is to get the honey if possible into the package in which you are going to sell it at the time you are extracting, and get it sealed as nearly air tight as convenient, and as soon as possible.

Mr. MCEVOY: I agree with Mr. Pettit in part of that. He is going to cork that barrel as soon as he gets the honey into it. I like to put it in an open barrel, and as soon as it is filled cover it with four or five newspapers and a hoop over it, and keep it tight that way, because I want to skim that in four or five days afterwards to get any stuff that rises on the top.

Mr. PETTIT: The honey is strained before it goes in the barrel through cheese cloth.

Mr. MCEVOY: I will double-strain it through cheese cloth, but just as soon as that barrel is full I will start another one, and I will leave that eight or ten days, and I will notice there will be a little white scum gathered all over it. It is not much; but I want half an inch off that. Then I will put a paper over it and drive it air tight before it will lose any of the clover flavor.

Mr. PETTIT: I think that which rises on top of Mr. McEvoy's barrels, and all honey that is stored in that way, is only fine bubbles that get into the honey that is strained. If there is anything wrong with it, it has got wrong from contact with the air from being exposed for that length of time.

Mr. BYER: This past season I did not want to go to the expense of getting sixty pound tins, and I put some in tanks and the balance in barrels.

Mr. PETTIT: That is the difficulty I am in every year, and on that account each year I have two or three thousand pounds in large tanks that hold one thousand pounds each. I cover these up, and I consider the honey from them is not quite so good as that put right into barrels, but I don't know how to avoid it.

Mr. MCEVOY: What are these tanks?

Mr. PETTIT: They are tin.

Mr. HOLTERMANN: I would like to have Mr. McEvoy take some of that from the barrel, and give it to Prof. Shutt. If he strains that through cheese cloth, I would be very much surprised if it is anything more than you get from beating the white of an egg.

Mr. MCEVOY: Although that is double-strained through cheese cloth, I sometimes take half an inch off several barrels. I will have a pail full. You see fine little specks. You may think it is nothing, but I don't want even that.

Mr. SMITH: Do I understand Mr. McEvoy that the scum is half an inch thick?

Mr. MCEVOY: No. (Laughter.)

Mr. SMITH: Has Mr. McEvoy ever noticed any difference in honey from the bottom of the tank and what you find at the top?

Mr. MCEVOY: Yes.

Mr. HOLTERMANN: And the longer it stands the greater the difference.

Mr. ARMSTRONG: What is the cause of that?

Mr. Dickenson: When you skim a barrel or tank, the skimming soon turn into honey. You get another skim. You do not have to go very far down into the skimming. I mean, after you get a pail or dish or whatever you put your skimming into, you will find it is honey. I am thoroughly convinced of that, so I am not very much exercised to know really what is the right thing to do with this honey after you extract it.

Mr. Holtermann: There may be several causes why honey at the top of the can is thinner than at the bottom. When you extract, a portion of what you extract is thin nectar, used in the combs, that does not readily distribute and give an even specific gravity. The tendency is for the thin nectar to rise to the top and the heavier to go to the bottom. At the same time the farther it has to go, and the less difference there is, the more it gets distributed and equalized. The greater the difference of what is in the combs, the more the tendency will be for the top to be thin and the bottom to be heavier. That is one reason. But there is, I believe, quite often another reason, and that is that the moisture is absorbed at the top of the can, and the longer you leave it exposed the more there will be of thin honey at the top of the can.

Mr. Fixter: To make the analysis which Mr. Holtermann suggested worth anything, you would require three samples out of the can; from the top, from the centre, and from the bottom.

Prof. Harrison: If you examined that with a magnifying glass it would tell you if it were air bubbles.

Mr. Armstrong: I would venture to say that most of that froth, if you call it that, or white scum, is for the biggest part comb.

Mr. Holtermann: No.

Mr. Armstrong: I think so. If I take and skim the top of a can, and put it into a can when it is partly granulated to liquefy it, I always find that there is a little more scum comes on top, and that after it is thoroughly liquefied it is perfectly clear. If you take that little scum that comes to the top, and put it in your mouth and chew it the same as a piece of wax, you will come to the conclusion that there is a great deal of wax in it.

Mr. Holtermann: If you are running honey into a vessel, and you take a cullender with fine holes in it, and put your honey through that, and let it go in fine streams a long distance down into a lower vessel, you will have a great deal more of that white scum than if you bring it in quickly. If that is wax, can wax be produced by that process?

Mr. Dickenson: I think probably that wax theory would hardly satisfy me. Of course I strain through milk-strainer wire. I always have. I never used any cheese cloth in my life. I double strain, but the last straining goes through milk-strainer wire. I do not know whether any wax would go through or not, but the scum forms on the top of the can all the same.

Mr. Darling: There has been a good deal said about this scum. I am somewhat inclined to think with Mr. Dickenson. I have found when liquefying honey after it has been granulated and strained that there comes a white scum on the top. Do what you will with that you cannot get rid of it. Unless you skim it off it will stay there, and the purchaser very likely does not like to see it. You heat this honey, and let it stand until it is half cold—take off this scum and then fill your glass vessels, and you will have it as pure and nice on top as on the bottom. I do not think there is so much wax in it, although there might be a little; but it is an impossibility to get rid of that white film unless you take it off after the honey is partly cooled.

Mr. GROSJEAN: I think it would be very easy for any person to convince himself whether that was wax or not if he took the bottom of the tank and strained that to see if the scum would form. If it does not do that it is not wax, because wax will always rise to the top the first time.

Mr. SMITH: I would like to ask Mr. Dickenson if he uses this milk-strainer cloth, what size of strainer would be necessary to strain honey through as fast as you can extract it?

Mr. DICKENSON: Simply use more than one. About ten or twelve inches across. I have two different sizes. I have three strainers of milk-strainer wire, and I have other strainers a little bit coarser to catch the coarser wax or anything else there is. I extract on a platform, and as soon as my strainer clogs I move my strainer to the next can. I let the top run just the same in the empty can till this strainer empties, and as soon as it strains out I move back, go right ahead till I put it all through. I never was stopped by having two cans going at the same time, or using an extractor on two cans instead of one. I will admit that if I was trying to run it through one strainer it would block. I think in this discussion it is just as well to bear in mind that a honey house has something to do with the situation. I think that if you have a honey house that is warm, your honey will go through this strainer better than if it is a cool honey-house, or a cool day when extracting. I have never had any difficulty in getting my honey through milk-strainer wire. My strainer is like a sieve. I could not buy one, but I bought the wire and made one myself. I got a man to make another one like it. It is made of tin.

Mr. DEADMAN: There is one exception I take to that paper. Mr. Pettit used a wheelbarrow to take in his extracting combs. It is the practice of most of the bee-keepers to use a wheelbarrow. A wheelbarrow was never intended for that purpose. If you once used a waggon I do not think you would ever use a wheelbarrow again for taking in your extracting combs. You cannot tier them up in a wheelbarrow. You may take two supers, or as many as the wheelbarrow will hold; but take a waggon and you can tier them up six high, and have the box wide enough to hold two. This summer, in taking in our extracting combs, we put them two wide on the waggon and four deep, that is eight supers at a time. Can you take anything more on a wheelbarrow?

Mr. HOLTERMANN: I would like to ask Mr. Deadman whether that waggon will work upon uneven ground?

Mr. DEADMAN: On any ground. If you have uneven ground, and have many supers on you need a person to hold that on. We have two. One draws the waggon, and the other holds them on; and the same thing in taking out extracting combs. We have taken in ten supers at one load. The waggon draws easily on level ground. It costs about two dollars.

Mr. PETTIT: What would one of those supers weigh?

Mr. DEADMAN: We can draw five hundred pounds on the waggon in supers or any other way, and one thousand pounds on a level road.

Mr. MCEVOY: I think Mr. Deadman and Mr. Dickenson would make a fine team to hitch up in a big yard. Mr. Dickenson will take off in the honey flow a whole row clean down a bee yard. He has the quickest and readiest way. You come along with that little waggon, and you would gather it up pretty near as fast. Now, I think you ought to go together, and you would make a fine team.

Mr. DICKENSON: I do not like to see the wheelbarrow business knocked out like Mr. Deadman does it. I have a wheelbarrow, but I do not think it is the kind of wheelbarrow he has in his mind at all. I can carry out twelve supers empty. It is a rack barrow that I have used in my brick-

yard, and I find it very handy in the bee-yard. I never wheel less than about three supers full, and pretty nearly as many as I like empty.

Mr. HOLTERMANN: Is the barrow the width of the super in length?

Mr. DICKENSON: My barrow will hold two side by side in front of the handles. It runs out about five feet with the wheels in the centre. It is on springs.

Mr. HOLTERMANN: You would have to have a large tire.

Mr. DICKENSON: It is narrow.

Mr. DEADMAN: The waggon is the same width. It does not matter how many supers you pile up as long as your door is high enough.

Mr. MILLER: Like Mr. Dickenson, I do not like to see the wheelbarrow knocked out. I have a very handy one with a thirty inch wheel, and wide tires, with a platform and a front extending up which will take as many supers as a man can wheel, with a spring that is not at all heavy. To my mind it is more convenient on rough ground or among trees and hives than the waggon, providing your barrow is constructed to suit the hive you use. You can tier up and keep them tight, and you will handle them just as well.

Mr. PETTIT: That is quite a point, using a wheelbarrow on rough ground. A wheelbarrow only needs one track, and a waggon needs a double track. In running out-apiaries and putting bees wherever we can get a place we cannot always choose our ground; and another thing, we have so much truck to carry around; I would need to see a great advantage in a waggon to carry that with me, too. Every farmer has a wheelbarrow, and you can borrow it, but to carry your waggon along with you as well as the other things means something extra.

Mr. DEADMAN: You can borrow the wheelbarrow all the same in out apiaries, but use the waggon in the home apiary.

Mr. McEVOY: I use a wheelbarow, one of the lightest I have seen, but I often thought about that little waggon, and I think I will take the waggon.

Mr. MASON: I use an electric tramway for my bees, and I think this discussion about the wheelbarrow should be dropped. We are wasting time. (Laughter).

QUESTION DRAWER.

THE PRODUCTION OF COMB HONEY.

The PRESIDENT: In producing comb honey, of course, we must have bees. What variety of bees would you have?

Mr. HOLTERMANN: That is a question I would like to have an answer upon myself. I do not know. And more than that, I would like to know very much. My impression is that where you are in a section where there are breaks in the honey flow which tend to check the swarming, the best bee you can have for comb honey is a cross between the Italian and Carniolan. The Carniolan has this characteristic, it builds up well, it propolises very little, and it caps very white. There is not a single objection in my estimation that can be found to the Carniolan with the exception of the tendency to swarm. In the production of comb honey in a good many sections, the Italian bee, if you get the right sort, is a bee which counteracts the tendency to excessive swarming. They hold together better, and where you can get them with a dash of Carniolan blood in them

it is a good thing; but where you are trying to produce comb honey in a section where fruit bloom and something else comes in to keep the bees working pretty well into clover, and then clover lasts into basswood, I do not think that strain would be desirable.

Mr. ALPAUGH: I have not had all the varieties by any means. I have had little to do with any outside of the Italian and Black, and I find a cross between them produces very good comb honey. It depends a good deal upon what you want. If you want nice showy white honey the Black is better. If you want to get a good crop, and are not particular whether it is white or not, I believe the Italian will be the best bee to store. That is a good Italian. If you can get the right Italian. There is an awful difference in them. They have been bred and bred until you get them very pretty, but not of much use. If you can get as near as possible the original Italian bee from Italy, I find they are very good workers.

Mr. MILLER: I have not produced comb honey for several years. Our seasons have varied, and with the shutting off through wet and cold weather I have not thought it advisable, so that I do not think I could offer any explanation.

Mr. SMITH: My experience is similar to Mr. Alpaugh's. I think probably Mr. Pettit had had more experience with the different varieties of Italians. He might give us his opinion.

Mr. PETTIT: I do not think I can add anything to what has been said. I would agree with what Mr. Alpaugh and Mr. Holtermann have said in that respect.

The PRESIDENT: Having settled on our variety of bees we shall require a hive. Shall it be large or small, deep or shallow?

Mr. ARMSTRONG: These bee keepers that use ten and twelve frame hives might give us the average of their yield for the last ten years.

Mr. PETTIT: I would prefer for comb honey a hive the size of the ten-frame Langstroth.

Mr. MCEVOY: I would like to hear Mr. Miller, of London. He uses a Hedden, which is supposed to be a great comb-honey hive.

Mr. MILLER: As you all know I use a divisible brood chamber hive equal to ten Langstroth frames, and I consider it an excellent system either for comb or extracted honey, it makes no difference which. You are enabled to divide the brood chamber by exchanging it. You place the super right on top of your top bars, forcing the honey into your section with the least amount of labor possible. It is a system, of course, that is not popular, and I do not know that I could say anything in regard to it. It is a system quite well known for a short cut. If the short cut isn't made use of there is probably no better than the hanging frame, but if short cuts are made use of it is an excellent hive for either comb or extracted honey.

The PRESIDENT: We shall require our super to take our comb honey. I have never seen a super yet that met my ideas exactly. I would like to know if anyone has the ideal super?

Mr. FIXTER: Before we leave the question of hives, I have tried experiments with the Hedden eight-frame Langstroth, a hive equal to the ten-frame Langstroth, and a very large hive equal to twelve, and I never could get the honey, either comb or extracted, from a twelve-frame that I could from a ten or even an eight. I would prefer the ten for both purposes.

Mr. MASON: As to the production of comb honey I would say that the size of the hive had not so much to do with it as the size of the colony. A strong colony, I always find, produces comb honey much better than a weak one. I find no difference between the eight, ten and twelve-frame,

only so far as the strength of the colony affects it, and the size of the clover field also has a little to do with it.

Mr. HOLTERMANN: I learned a very good thing from Mr. Sibbald last year in connection with the strength of the stock. You know we cannot get every stock the same strength, and in private conversation, with Mr. Sibbald he mentioned that when your honey flow came on if you have a twelve-frame hive, and your brood chamber is in such a condition in the hive that it cannot well utilize twenty-frames, not to go on increasing the size of the brood chamber during the honey flow, but to put in your division board and use it for whatever it is worth.

Mr. SMITH: I would like to ask Mr. Holtermann if he ever tried uniting before the honey flow instead of running the colony for what there is in it.

Mr. HOLTERMANN: I may be wrong, but I do not believe much in uniting bees.

Mr. SMITH: Not so much in uniting bees as in uniting brood.

Mr. HOLTERMANN: I would not unite brood, but if I have a stock that I cannot control as far as swarming is concerned, I would shake it off, and then give the brood to stocks that are not full, and in that way in a very short time you can get a good stock out of it.

Mr. PETTIT: I suppose along the line of uniting brood would be equalizing brood at the beginning of the season. I do not know whether we need discuss that here, it has been threshed out at other conventions; but if we find a stock that is extra strong and liable to swarm, take one or two combs of capped brood from it and give them to weaker stocks. Do not give too much brood to stocks that are too weak, and do not take too much brood from any one stock, or it weakens it too much.

Mr. CHRYSLER: I do not believe in strengthening weak stocks after a honey flow is on, unless they are in a shape to store honey. I find when the honey flow is on, if you can get it, you should get it as quick as you can.

The PRESIDENT: When shall we put on our sections—at the opening of the honey flow or after swarming?

Mr. ALPAUGH: It is some time since I have been much in comb-honey business. When I was in the business I liked to get my sections on in good time, so as not to have the bees get the swarming fever before I got them on. I do not think it hurt them much to have them on in good time and get the bees started up in them. That is not the time when they glue and propolise up things as they do later on in the season.

The PRESIDENT: Don't they nibble the foundation?

Mr. ALPAUGH: Not necessarily. They do that more after the season. I prefer putting them on in good time, and giving the bees to understand what they have to do.

The PRESIDENT: When do you put in your sections?

Mr. SMITH: In my experience I do not like to put them on till the bees are just about ready to work on them. If there is nothing coming in they are very apt to chew the foundation. That makes sections that you cannot get properly filled. It is a good thing if you have a super of the sections with the foundation drawn out the previous season, if you can get that on. If there is anything coming in from the fields, they will be apt to go into it and get started on that, and then you can put on a super filled with foundation, and they will continue the work. I find there are some bee keepers who leave the sections on all winter, but there are some that think it is an advantage in cold sections to use drawn combs with a little honey in them. They will not trouble to extract or clean that out,

but they will just put the sections in the super with a little honey in. I do not know whether you have ever noticed your finished sections from that practice. They are very apt to ferment, and some bee keepers do not know what the cause of it is.

The PRESIDENT: Would it be worth while if you had a few bait sections to put them in, even if you threw them away afterwards?

Mr. SMITH: I would put either two or four, or as many as I have, in the corners, but they must be dry, because, in every case otherwise, they will ferment and spoil the capping in the finished comb.

The PRESIDENT: Mr. Sibbald waits till his bees swarm, and puts his sections on the swarms.

Mr. SMITH: That is all right.

The PRESIDENT: I do not know whether he can get the quantity. I should not imagine he could.

Mr. PETTIT: That is the best way for quality, though.

The PRESIDENT: Is there any other bee-keeper who practices that?

Mr. SMITH: That is very largely our practice, and we find we can always get it nicer and whiter, and the sections finished.

Mr. BYER: Do you have any extracting super on previous to that?

Mr. SMITH: Oh yes. In some seasons there will not be sufficient room in a nine-frame hive to give the queen sufficient space, and we put on another set of combs or a shallow body, and just before the honey flow commences we will take that off and put on the sections, or put the sections on the swarm. We use perforated metal between.

Mr. ALPAUGH: I understood that this was a clear case of producing comb-honey. Another great thing we are after is a non-swarming system, so that we would not have to watch our bees or shake them, as the case may be. I was pointing out the way I would do to prevent all this. I do not want my bees to swarm, and I do not want to have to watch them, and to do that you have got to put on some kind of room. If you run for comb-honey, that is the only room you have got. If I was running for both, I would put on an extracting super and take that off later on and put on comb.

The PRESIDENT: But still you must work for comb-honey in your comb-honey system?

Mr. ALPAUGH: There are lots of people do not produce any extracted honey at all. If you were going to leave off everything till they would swarm, they would swarm pretty quickly, and before they would do anything, probably.

Mr. SMITH: The object of putting on, not necessarily extracting combs, but it might be another brood nest, is simply to give the queen room.

Mr. HOLTERMANN: I suppose the question is to be connected with what is practical and will pay. Whilst there is no doubt in my mind whatever that the best comb honey can be produced by having your bees swarm first and then hive them upon starters, and putting on your sections then, I doubt very much if that is the way in which you can get the best return, unless your honey flow is exceedingly short. Now if you do not put on a super before your bees swarm, you are going to have a very strong swarm, and then if you put that upon starters and they have got to build their comb, it takes twenty-one days to develop the first bee. Then that stock is going to be very much depopulated by that time with the old bees dying off, and in the flow that comes on about two weeks or so after that the swarms issue, and there is not going to be anything like the number of bees to gather. Another disadvantage, of course, is there will be more or less of drone comb, and in those combs that are built upon starters there is a very great

disadvantage in the production of honey. If you put your sections on too soon in our locality, or any locality where raspberry is, it is exceedingly dangerous because the raspberry runs into clover more or less, and it seems to be necessary to watch your sections from day to day to see what your bees are bringing in. If you see they are bringing in dark honey, as long as they are doing that if you want to have a first-class article you must not put on your sections. Another reason for dark honey is the weather.

The PRESIDENT: It has always seemed to me one of the most important things in getting sections well filled is the amount of foundation you put in and how you put it in. What is your method, Mr. Smith? How much foundation do you put in and how do you put it in?

Mr. SMITH: We use full sheets of foundation. That is the best foundation we can get, thin and good, and have it fit the foundation within one-sixteenth of an inch. It is with us a difficult matter with one-piece sections to get it to fit so accurately, but we find with four-piece sections we can get it to fit all right. The main advantage in sections filled with full sheets of foundation is you get a very much larger percentage of sections that there is no risk comparatively in shipping. There are very few sections built with a starter of foundation in that you can ship without breaking down.

Mr. MILLER: I prefer to use a small starter at the bottom with a piece at the top.

The PRESIDENT: How large a starter do you put in the bottom?

Mr. MILLER: About five-eighths.

The PRESIDENT: Did you find that it fell over at all in hot weather?

Mr. MILLER: No.

The PRESIDENT: You practically filled the section?

Mr. MILLER: The section was filled, but partly from the bottom—about five-eighths of an inch from the bottom.

Mr. HOLTERMANN: Do you think that is necessary?

Mr. MILLER: I do, just the same as anything else. If you want to avoid pop holes I think you will do so to great advantage if you are working for a good grade of honey, and it is very little more labor.

The PRESIDENT: Do you fasten your foundation in by the hot-plate system?

Mr. MILLER: Yes.

Mr. HOLTERMANN: I think it is exceedingly important, as has been said, to have the foundation properly put in the section. More than that, I do not believe you can get a choice honey, no matter if your after system is used the same as the other man's, unless you have your section well filled with foundation to begin with, but I do not see any necessity for putting the piece in the bottom of the section.

Mr. PETTIT: I use a four-piece section and the foundation is attached to the top bar of the section with the hot plate before the section is put together. The foundation I have cut as near the size of the section as I can get it, so that it just does not touch on three sides and it is fastened on top. There is one point in fastening in the foundation that I consider quite important, that is to hang the foundation the strong way. In looking over the foundation you will notice one way it looks smooth on the surface. If you hold it and look over it the other way you see it is corrugated. If you hang it with those corrugations level the weight of the bees on the heated soft foundation has a tendency to straighten out that sheet and stretch the foundation, so that if it nearly touches at the bottom it will stretch so that it buckles at the bottom, and you have your section

spoiled. If you turn it the other way so that those corrugations run up and down, there is very little chance for stretching. If my foundation is cut the right size, so that it just nicely fits the section, I find no need for the bottom starter. In some cases the foundation is not cut just right, and I use the bottom starters, and I find they give very good satisfaction.

The PRESIDENT: I think Mr. Sibbald puts his foundation in with hot wax, and not with a hot plate.

Mr. HOLTERMANN: I do not use a hot plate for a one-piece section.

The PRESIDENT: I understand that Mr. Sibbald not only fastens it on top, but all around.

Mr. DICKENSON: That prevents the pop holes.

Mr. PETTIT: There is one point I would like to emphasize before we leave this subject, and that is that in order to get nice straight sections we must have the foundation to hang straight in the centre, and we must have separators as well as to have the sections well filled.

The PRESIDENT: We will ask whether we should use plain section and fence separator or slotted section and plain separator. Which is the better plan?

Mr. PETTIT: The best separator I have used which produced the nicest comb honey was a separator made by my father which was bored full of holes. I think these holes were 3-16th or 1-4 inch. It made a very expensive separator. It was a little thicker than the separators you buy. The block was bored before the separator was split. They were sawn separators. The plain separators are very good, but I think we get better results by having separators that the bees can pass freely through. Slotted separators is the next thing to that, but it is almost impossible to avoid the wash board appearance of the comb honey. The space between the slate must not be more than one-quarter inch.

Mr. HOLTERMANN: I have nearly one hundred comb-honey supers, and they have a separator which in my estimation cannot be beat, and they have been in use by certain parties for twenty years at least. I refer to the separators made of wire cloth. It was invented and patented by N. N. Betsinger, in New York State, and the first time I saw it was twenty years ago at Rochester. I had it again drawn to my attention some two years ago when I went to the New York State Bee Keepers' Convention, and knowing what the men were doing over there that are using that separator I had nearly one hundred of these made. They are very expensive, but the way they have it, this wire cloth is suspended, and the bees can go through everywhere. Where I have a fence separator it is always rigid. These I have are good for fifty years as far as I know; I do not think they have an equal.

Mr. SMITH: I might say we use a perforated separator, only it is cleated similar to the fence. We like that very well, but we do not think that is the finality in separators. I think it is in a state of evolution just now, and we will have something better after a time.

The PRESIDENT: We will suppose our first super is getting nicely worked out; the honey flow is starting or not long on and we think it is about time to put on a second super. Where shall we put it, under or over the first super? I believe Mr. Herschiser advocates putting it on top. Are there any gentlemen who have practiced that method of putting the next super on top of the first one?

Mr. PETTIT: Towards the end of the flow.

The PRESIDENT: I think it is the general practice to put the second super underneath the first one. A great many bee keepers who produce comb honey would like very much to control swarming, to keep them back

from swarming. After our couple of supers begin to get nicely filled very often the swarm will come out. Is there any method by which we can keep them back?

Mr. PETTIT: They are bound to swarm.

Mr. DARLING: I had one colony that I think I had three supers piled one on top of the other. I gave them those supers on the supposition they had plenty of room. They swarmed three or four times. Finally they swarmed, and there was a young queen in the air at the same time, and she got mixed in with this swarm, and they found a place to settle and stayed there till I took care of them. I simply put them in another hive, and only gave them three full frames of empty comb, and I put on a queen excluder. I filled up the balance of the hive with the division board. I took three supers off the old hive, and put them on the new one, and it was not long before I had three solid broods below, and they did not sulk about it one bit.

The PRESIDENT: In working for comb honey on what shall we hive our swarm—on combs, full sheets of foundation or starters?

Mr. CHRYSLER: I had a lot of empty combs this year, and I hived some for comb-honey on the empty combs, and in three weeks every one of them was swarming or wished to swarm. I did that just for convenience. I am well satisfied that half-inch starters are best.

The PRESIDENT: How many frames did you use?

Mr. CHRYSLER: I used ten frames. I have hived a good many bees on starters and contracted brood nests, and I find they swarm in about four to five weeks afterwards. I would like some more information about hiving on starters to prevent them from wanting to swarm so soon afterwards. This swarming business for comb-honey is our greatest trouble. I have succeeded to a certain extent in a limited way by superseding the queen at a certain time, and in that case I have never had any swarming at all—that is providing it is done at a certain time and in certain ways. Those times and ways I think are experimental yet. For extracted honey, of course, I would not hive on anything but full sheets of foundation.

Mr. SMITH: I used a two-inch starter for hiving swarms on. I was going to ask Mr. Chrysler the question as to how he comes to use half-inch starters in a ten-frame. We only use five-frames and two-inch starters and we are troubled very little with after swarming. If you let them get crowded they may have a tendency to swarm. I am speaking merely of our locality. We find if you have a very shallow starter, you have to leave your sections off a long time, or you will have a much larger percentage of pollen in the sections. If you have a wider starter it gives them a better chance, and by the next day they will have that drawn out and the pollen they brought in stored in that.

Mr. HOLTERMANN: Suppose you put in the drawn comb at one side to catch that pollen?

Mr. SMITH: I have tried that too. That would answer just as well but we always aim to have foundation starters. If you have clean comb to put in there it is all right, but I would not put an old comb in if I wanted fancy comb-honey.

Mr. CHRYSLER: Those ten-frame hives I speak of were the Danzenbaker shallow.

The PRESIDENT: What do you use in hiving your swarms, Mr. Pettit?

Mr. PETTIT: I use about six starters and a comb.

Mr. BROWN: In hiving on those starters are you not liable to get a lot of drone comb in the hive?

The PRESIDENT: It depends somewhat on the age of the queen.

Mr. Smith: My experience is that if you have a young queen you will have very little drone comb. If it is an old queen, if there are not more than five or six combs, there will be a large percentage of worker comb. There may be some drone comb but not much.

The President: Even supposing you have to take some of those combs out, do you think in working for comb-honey it pays to use starter?

Mr. Smith: Without any doubt.

Mr. Holtermann: Is that not partly gauged by whether your flow is going to continue or not? If in the early part of the clover flow you put your bees on starters that way there is no doubt you will get good comb-honey if it is to be got, but if you have a basswood flow following it, are those stocks then in a condition to give you good comb-honey?

The President: Why not?

Mr. Holtermann: Because they do not brood-rear fast enough to make up for the bees which are dying off. I suppose you will notice there is a tendency to cease taking comb-honey and go into extracted honey, and is it not partly because with all these things that have to be done in the production of comb-honey you do not get enough comb-honey in proportion to the extracted? Is that right, Mr. Hall?

Mr. Hall: In my case it is.

Mr. Brown: With regard to the old or young queens swarming, it is usually the old queen that swarms, as there is no other queen to swarm from the first swarm, consequently there must be drone comb come in.

Mr. Holtermann: There is not so much difference between the young and the older queen of the first or second year in the matter of tendency to swarm and building drone comb, as is generally stated. I may be wrong, but I have my doubts about it.

Mr. Hall: My preference is first for starters, second for foundation, and lastly for comb.

The President: How many frames do you use?

Mr. Hall: That all depends. If I want to keep the stock in the future I use four. If I want to do the same as I have done this year, I use the whole hive because I am simply turning them into wax.

The President: After swarming what will we do with our supers or sections that are on the old hive?

Mr. Hall: I put them on top of the new.

The President: Do you put them on immediately when your hive has swarmed?

Mr. Hall: In ninety-nine cases out of a hundred, but I have no established rule.

Mr. Holtermann: How do you treat your brood chamber? Do you just give them starters?

Mr. Hall: I prefer starters for comb-honey. For extracted honey I prefer combs, if I am with the bees. Otherwise I would prefer one sheet of comb in and starter. That catches the pollen and keeps the bees there.

Mr. Pettit: There is a point I would bring out in connection with adjusting the brood chamber for the swarms. We know that bees differ in different years as to their desire to swarm. In some seasons where you hive them on the six starters and one comb and the rest of the hive filled out with dummies, you find they will stay hived all right. Other years they do not like such a small brood chamber, and we give them the full set of starters with one small comb. In two or three days time, walk around and take out the starters at the outside, and put dummies in in their place. This contracts the brood chamber, and gives more honey in the super, and better finished combs in the brood chamber.

The PRESIDENT: In seasons when there has been trouble with the bees swarming out on a contracted hive, I have often put an empty brood chamber underneath the one with the frames, and after they have got nicely at work removed it.

The PRESIDENT: How shall we remove our sections?

Mr. HALL: How do you court a girl?

The PRESIDENT: Do you use smoke or do you use a bee-escape?

Mr. HALL: Both and oftener neither. The nicest way for removing comb-honey is just to quietly give them a puff of smoke, in fact no smoke at all. Take them off gently and set them down a few inches in front of the hive, and after you have gone all the way round you can take your wheelbarrow and gather them up, and take them to your house. That must be of course in the honey flow. The next best thing is bee-escapes. Bee-escapes are very nice, but the bees are all ladies, and sometimes they are very contrary. With nineteen colonies you can do what I have said very nicely with, but the twentieth one says, "What business have you here?" And they begin to sting. I like bee-escapes for comb-honey, especially in the fall.

The PRESIDENT: How do you remove your sections, Mr. Pettit?

Mr. PETTIT: I use bee-escapes, mostly—the Smith escape.

Mr. BROWN: Just one escape in the board?

Mr. SMITH: There is one escape, but it has a number of openings so that the bees when they come to it can simply go the whole width and go out eight openings, and a spring closes behind them. They are attracted to the light. At the same time it affords more or less ventilation. We find it answers very well.

Mr. HOLTERMANN: There are perhaps some that have not bee-escapes. A good many years ago I read in the "British Bee Journal" of a way of taking off sections. Bee-escapes may be better, but it is a question that will be open to argument. That way is this: Carbolic acid is used, and you make a solution in which you can put your hand without injuring it very much. Dip your cloth in that and spread it over the section, and it is astonishing how quickly the bees will rush out of the sections. Insects object very strongly to carbolic acid. They will go out fairly like a shot, and it is a way of taking off sections for those who have not bee-escapes which they will find very advantageous.

Mr. HALL: But sometimes we have to take off a case of sections when there are six under that case. It will drive them down out of the seventh super. We do not want them driven down. We only want them out of the super we have to take to the honey-house. I never tried carbolic acid except for washing my mouth sometimes. In the honey season I want nothing at all—smoke or anything else. You had better not use smoke, because some times they bite the capping, and if they do it makes it unsalable; also by smoking you disturb the bees in the other supers. Use bee escapes if you have four supers on.

Mr. HOLTERMANN: I was especially referring to taking them off at the close of the season: I cannot use carbolic acid for extracting honey, because the effect is not sufficient to drive them out of the extracting supers.

Mr. CRAIG: It depends on how strong you make your solution.

Mr. HOLTERMANN: You cannot make it any stronger than your hand will stand. The skin feels dry when it is about the right consistency.

Mr. CRAIG: If you use soap liberally on your hands you will find it does not affect them.

The PRESIDENT: Do you use queen-excluders in producing comb-honey?

Mr. PETTIT: I consider it an important question, and I would like to have it discussed more fully than time will permit. I do not use queen-excluders when I put the sections on first, but as soon as the swarm is hived I put the queen-excluder between the brood chamber and the sections. My object in doing that is, first, to keep the queen from going up, which seldom but sometimes does happen; and to keep them from carrying pollen into the supers. Another point is to keep drones from going into the supers, because we find it very inconvenient getting them out.

Mr. HALL: Whether you hive with a contracted or full hive for comb-honey, always put on a queen-excluder. Never use it for comb-honey after they have been on a few days; they are better without the queen-excluder. In hiving on combs we always put on queen-excluders, but otherwise if we hive on starters. If you have got the hive partially full of comb, we prefer to have the queen-excluders taken off. One reason is you cannot get the drones out, and without the queen-excluder they go out themselves. The bees have a freer passage up and down. They are not crowded, and it feels more like home and they certainly give you more honey. If I were at your age, Mr. Pettit, I certainly would not take a pound of extracted honey.

Mr. HOLTERMANN: Do you think it is possible to successfully produce comb-honey and run out-apiaries where there is no one to watch those bees?

Mr. HALL: I would rather run it without a watcher than with. If I had a watcher there he would go to sleep, and would not watch the bees on a warm day. One year I was troubled in one of my out-apiaries with foul brood, and I did not want it there, and your inspector pronounced them half diseased. He said, "What are you going to do?" We hived them on starters and put the sections right on with the queen-excluder, and we got one hundred and forty sections off those bees, and they filled up nicely for the winter.

Mr. HOLTERMANN: Was that a season where there was an exceptional tendency not to swarm, or at what part of the season did you do this?

Mr. HALL: I did that just at the commencement of the honey flow about the 10th June. I stayed for two days, and did the whole transaction. I shook off every colony clean or dirty, and we had two of them swarm after that, but at home they swarmed, and swarmed unmercifully.

Mr. HOLTERMANN: Do you know how long it was from the time you shook them till the close of the honey flow?

Mr. HALL: I would not like to say. It was a good clover and basswood season, and we got some of the prettiest comb-honey that I ever got.

DISEASES OF BEE LARVÆ.

By PROF. F. C. HARRISON, O.A.C., GUELPH.

It affords me much pleasure to again address this convention of the bee-keepers. I had not the pleasure of attending your last meeting, but I am always loath to come before any convention with an old story, even when it is placed in a new dress, and I am afraid I am somewhat in the same box this year, in that I have got to harp again on the old subject of foul brood. Before reading my paper, which I have entitled "Diseases of Bee Larvæ," I should like to make a few remarks about this Association, if I may be permitted to do so. I must congratulate the Association in, as it were, amalgamating with the Fruit Growers and also with the Horticultural Society

of Toronto. I think it adds strength to the meeting, and I think that the attendance so far has been good evidence of the benefit that you have derived from this amalgamation, and I hope that this will continue so in future years.

In looking over the work of the various societies which are helped more or less by the Ontario Department of Agriculture, I have noticed that not content with holding annual meetings the Department, through their various officials, are endeavoring to create interests in the various lines in which they are engaged in horticulture, in agriculture, in dairying, etc., and during the year they hold meetings, not at the centres, but they go out on to the various farms or into the various factories and have meetings of those interested in that particular calling. I think this is a very good system to follow, and I should to see it introduced amongst the bee-keepers. I remember a short time ago that this Convention actually debated whether it was advantageous to get more people to go in for bees, as there was only a limited sale for honey. I think we have passed all that; we are in an era of greater prosperity, and I think a more effective means should be taken to instruct those who are raising bees and honey, and to endeavor to educate others who have natural tastes in this direction to start to work; for you are not only benefiting yourself but also benefiting the fruit growers, as the bees have a mission to fulfil amongst flowers as well as the mission which you are particularly engaged in, that of gathering honey. So I would throw out the suggestion that this Association have what might be called orchard or apiary meetings where they send out some instructor recognized by the Association to give instruction in the best methods of handling bees. We come here to learn, and there are very many points from which bee-keepers can pick up information not only at these meetings but by an instructor who should be sent around.

Another suggestion is this, that the only place I know of where bee-keeping is taught is at the Agricultural College, and I should like to see this Association recognize the fact that that is one of the subjects on the curriculum —to recognize it, and naturally draw more attention to it by that recognition. For instance, if they offered a prize for the best essay upon some subject in bee-keeping, or a first and second prize for those who do the best in their examination, on condition, of course, that their papers are examined by a committee appointed by the Association. I think in that way it would give a recognition to the subject at the College, and thus indirectly help bee-keeping. I just throw out these two suggestions, and hope they will be taken in the spirit in which they are offered.

This paper which I have to bring before you has to do with the diseases of bee-larvæ. Those of you who have followed bee literature for the last year or two, especially in the Bee Journals from the United States, will have noted that there have been several new diseases spoken about, and how far they are known or prevalent in Ontario I am unable to state. Two years ago I remember there was some talk of black brood, and I think a committee was appointed to send samples to me. Whether they did not meet with any cases of black brood or no I don't know, but I know I have received no samples, and what I have to say with reference to these other diseases is taken entirely from literature which has come out in the United States bee periodicals.

The diseases of the larvæ of bees may be roughly divided into two groups, one, in which he disease is contagious, and the other in which the disease is not due to a special virus but to some physiological or physical cause. The contagious diseases are the most harmful as they spread from

hive to hive and from one apiary to another, often producing a severe epidemic.

In all cases of infectious diseases, there must be present a virus or a living organism which may be a fungus or a mould-like growth, or due to minute organisms, which are popularly called bacteria. These micro-organisms may be carried from one hive to another in many different ways, and the following are the principal means by which contagion is spread and infection caused:

1. Bees entering wrong hives.
2. Bees robbing a diseased colony.
3. Feeding bees with honey from an infected hive.
4. Inserting diseased combs into healthy hives.
5. Using as a foundation, wax from a diseased colony which has been improperly boiled.
6. Transferring bees into hives that have been inhabited by a diseased colony without first thoroughly disinfecting it.
7. Placing a hive upon a stand previously occupied by a diseased colony.
8. The handling of healthy colonies by the bee-keeper after manipulating diseased hives.
9. The introduction of a diseased queen.
10. Healthy bees visiting flowers which may have been infected by diseased bees.

All these are means by which infection can be carried or transferred from one place to another, and evidence can be brought forward to show that disease has been produced by each of the different means above mentioned. "Foul Brood," being the infectious disease which is best known, naturally affords more example of these methods of transmission than any one of the other contagious bee diseases.

It is important that all bee-keepers should clearly understand these means by which infection is carried, also they should have a knowledge of the appearance of the various diseases of bees, so that they can diagnose or tell the kind and character of the disease in order to apply intelligently methods of prevention or cure.

I shall endeavor to give you a brief account of the general appearances of several of the best known bee diseases, taking them in order of their importance.

"Foul Brood." The larvæ attacked by *B. alvei*, the cause of foul brood, may die during all stages of their development. In every instance the larvæ lose their white and glossy appearance when suffering from the disease and turn to a dull yellowish, and later on to a brownish color. In the further progress of the disease they die and collapse into a darkish brown, coffee-colored, more or less tenacious, shapeless mass. This mass is characterized by its viscid character, and before it dries up can be drawn out in threads when lifted with a match or a pointed instrument. It has an offensive odor, which is said to resemble that of glue, and when much disease is present there is an ammonia-like smell. The cap of the larva sinks, and appears concave instead of being convex or flat, and it is often perforated with a small hole near the centre. Often the appearance of this sunken cell is the first indication of disease noticed by the bee-keeper. The decomposed larvæ gradually dry up and ultimately form a dry, black, or deep brown crust at the bottom of the cell.

The sunken and perforated cappings, the reduction of the larvæ to a tenacious brown mass, the characteristic odor and stringy nature of the mass, and the dwindling of the colony, are the most noticeable indications and results of the disease.

As the disease advances, the offensive odor pervades the hive, and when infection is spread over a great number of brood combs the smell may be noticed some distance away. The bees become more and more despondent over their helpless condition and ultimately succumb, or in some cases desert their hive.

"The New York Bee Disease" or "Black Brood." For a number of years past there has existed in the Sate of New York a disease known to the bee-keepers there as "Black Brood." It has also been called "New York Bee Disease," from the fact that it was first noticed in the State of that name. So far as is known, it was reported first from Sloanville, N.Y. The description given by the New York State Bee Inspector, is as follows: "The young larvæ have a yellowish speck upon the body, about the size of a pin-head, while the older brood stand out lengthwise in the cells, sharp at the ends, white, but not capped over. This brood dies, and is either removed by the bees or, later, flattens down in the cell and becomes of a cream-colored and, in a later stage, a coffee-colored mass. Later in the season some brood that died in the cells which had been capped over, becomes a rotten mass—a coffee-colored matter about the consistency of heavy honey. A toothpick dipped into this and drawn out causes this matter to stretch from half an inch to an inch, but does not break and fly back as quickly as in foul brood. The smell is not very bad, but in some cases it has a sour smell; while in some of the sealed rotten, coffee-colored brood there is a kind of rotten smell, but not like that of the old-time foul brood." Howard states, with regard to this disease, that the brood is usually attacked late in the larval life and dies during pupation, or later when nearly mature and ready to come forth through the chrysallis capping. Even after leaving the cell the bees are so feeble that they fall from the combs helpless. Most of the brood die after sealing. When the larvæ show the first signs of this disease, there appears a brownish spot upon the body about the size of a pin-head. The larvæ may yet receive nourishment for a day or two, but as the fermentation increases the brownish spot enlarges, the larvae dies, and stands out swollen and sharp at the ends. In time the brood becomes dark and rotten and these rotten masses, in time, break down and settle to the lower side of the cells as a watery, syrupy, granular liquid, not like the sticky, ropy, or glue-like semi-fluid substance of foul brood. It does not adhere to the cell walls like that of foul brood, and has not the characteristic foul odor which attracts carrion flies, but a sour, rotten-apple smell. The cap is disturbed from without, sometimes uncapped and the cell contents removed by the bees.

It will be seen from these accounts that whilst agreeing in some particulars, there are points of difference between the two descriptions given of this disease, and probably if a bacteriological examination of the diseased larvæ had been made by Mr. M. D. West, the New York State Bee Inspector, the organism which produces foul brood might have been found.

Howard, in connection with this disease, described an organism which he considered to be the causal agent of "Black Brood." He gave the name of *Bacillus milii* to it, from its resemblance to millet seed. The *Bacillus milii* is a spindle-shaped organism, which forms spores and, according to Howard's drawings, forms two spores in each cell, a rather remarkable occurence, for in most bacteria, as a rule, only one spore is found in a single cell. No description is given of the germination of these spores, nor the cultural features of this organism, so that, except from its peculiar shape and its ability to form two spores, it would be a rather difficult matter to identify this organism.

Howard claims to have produced the disease by feeding bees with syrup containing *B. millii*.

This disease has also been the subject of an investigation by Moore and White, of the New York Veterinary College, Cornell University. These investigators have examined a number of specimens sent to them during the season and which were labelled as "Black Brood." The ten specimens of "Black Brood" contained a bacillus which suggested by its constant presence that possibly it was the cause of the trouble. It was thought first that the bacillus so constantly associated with the "Black Brood" was the organism described by Howard as *Bacillus millii*; but a more extended study of this organism showed that it resembled *B. alvei*, the cause of foul brood. A very careful investigation of this organism from the specimens of "Black Brood" confirmed the identity of the species from the different sources, and the only conclusion they came to was that the prevailing bee disease in the State of New York was similar to, if not identical with, the foul brood of other states, Canada, and Europe.

From this evidence there seems to be some doubt as to whether black brood is a new disease caused by a new or partly described organism, or whether it is merely a disease closely allied, if not identical, with foul brood, but occasionally showing appearances which are different from the typical appearance of foul brood. Further investigation will be needed before this question can be properly settled.

"Pickled Brood." "Pickled Brood" is said to attack the larvæ about the time of pupation, and the appearance of the larvæ is ismilar to those that are infected with black brood, except that the brown spot is not present, and no decomposition from putrefactive germs takes place in pickled brood. The cappings are usually undisturbed and the decayed brood masses do not adhere to the cell walls. According to Howard, the infection in pickled brood is in bad pollen, and new pollen always causes it to disappear. The cause of this disease is said to be a fungus (*Aspergillus pollinis*). Moore and White, who examined five specimens of pickled brood, report no fungi present, but various micro-organisms were found, none of which, however, were specific.

"Chilled Brood." The cause of the death of the larvæ from this calamity is cold, as the name correctly indicates. It generally occurs when, after warm weather, which has induced the bees to deposit brood freely, a sudden change takes place, or very cold nights set in again. The brood in the outer combs, and where the bes cannot cover them sufficiently, generally suffer most. The larvæ may be killed during all stages of their development, but the capped brood rarely suffers to any extent unless the change of temperature is much prolonged. In cases of chilled brood the larvæ turn grey, afterwards the color darkens, and in the final stages of dedecomposition it becomes black. No ropiness develops, the putrid mass is more or less watery, and its smell is said to resemble stagnant water. No relation exists between chilled brood and foul brood, although many writers have mistaken the one for the other, or they have stated that chilled brood turns to foul brood. Schirach, as long ago as 1769, clearly distinguished between the two. In fact, he said that chilled brood is no disease at all. Chilled brood is caused by putrefactive bacteria which attack the larvæ *after* death. In foul brood and other infectious bee diseases, the micro-organisms attack the living brood and *cause* their death.

"Starved Brood." Occasionally instances of the starving of a brood-have been noticed. This occurrence probably can be explained by an abundant honey flow having induced the bees to encourage a large brood deposit.

when, after a severe extracting of honey, the bees were suddenly checked in the gathering of food for some time through bad weather. The brood do not die suddenly, but become emaciated and dry up, rather than putrefy. This affection is of rare occurrence, but it is curious and interesting to note that Virgil in his Georgic on the husbandry of bees, mentions starvation and the cure for it.

"When sickness reigns (for they as well as we
Feel all effects of frail mortality)
By certain marks the new disease is seen,
Their color changes and their looks are thin;
Their funeral rites are formed, and every bee
With grief attends the sad solemnity;
The few diseased survivors hang before
Their sickly cells, and droop about the door,
Or slowly in their hives their limbs unfold,
Shrunk up with hunger and benumbed with cold;

* * * * * * * *

Now lay fresh honey near their empty rooms,
In troughs of hollow reeds, whilst frying gums,
Cast round a mist of spicy fumes,
Thus kindly tempt the famished swarm to eat,
And gently reconcile them to their meat."

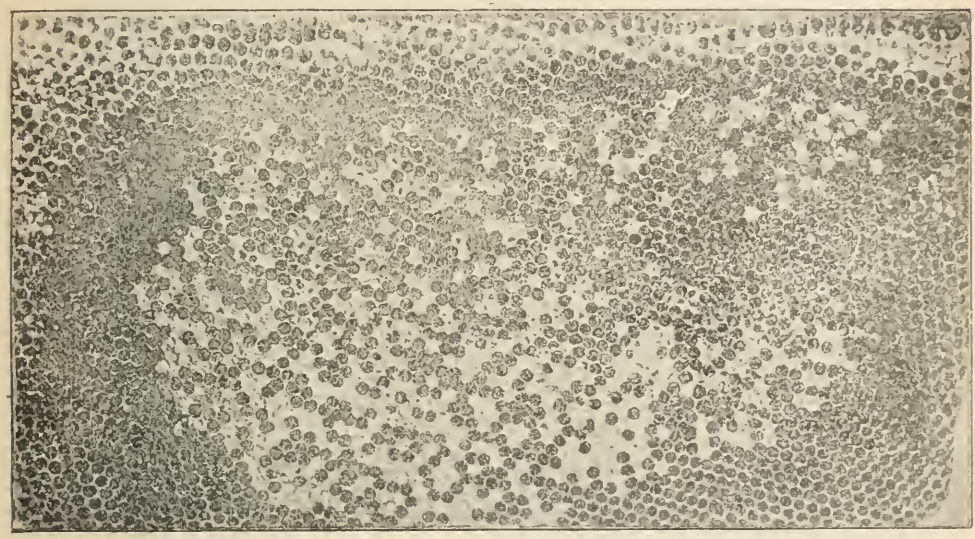
Treatment and Remedies. "Remove the cause and the effect ceases." Practically all the various methods of cure of the infectious diseases of bees adopt this maxim more or less thoroughly. The various starvation methods aim at getting rid of the infected honey and infected combs. The method of conquering the disease by feeding medicated syrups aims at the destruction of the vegetating bacteria, or preventing them from growing and the spores from developing. At the same time the action of the medicine may in some way exercise a tonic effect upon the bees. Treatment by means of disinfection by formalin, or other vapor, destroy the greater amount of infecting material, which is present in the hives and in the comb, relying upon the na tural resistance of the bees to get rid of any micro-organisms that may be present in or upon them. The bneficial results obtained from any of these methods depend upon the thoroughness with which they are carried out. Thus we have numerous instances of the starvation method failing, because of failure to disinfect the hive. Medicated syrups often fail because of faulty methods of application, the use of weak or feeble drugs, and not using the medicine for a sufficiently long period at a time. We have also occasional instances of the failure of the formalin treatment, perhaps due to improper methods of application, not using strong enough formalin, or not disinfecting the combs and hives in an air-tight box. These failures should not be counted against the method of treatment, for I am convinced that any one of these methods, if properly and conscientiously carried out, will cure even the worst case of foul brood, which, of all the infectious bee diseases, is the most difficult disease to deal with.

It remains for each bee-keeper to decide for himself as to the method of treatment he intends to follow and, having made up his mind, he should carry out that treatment intelligently and thoroughly.

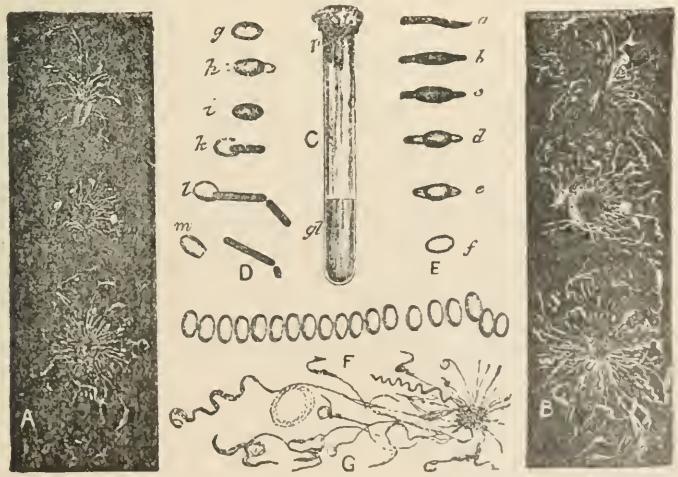
Mr. Holtermann: Prof. Harrison refers to the disease being transmitted not alone through what are admitted by bee-keepers generally to be the well-known channels, but he also mentioned the disease as being transmitted through the queen and through the blossoms which the bee visits. I think it would be very desirable for us to know the ground of Professor Harrison's conclusion. Foul brood is a disease which is dangerous to us, and it

is well for us to know just how dangerous it is, and then we will make every effort possible to have it stamped out.

Prof. HARRISON: In answer to Mr. Holtermann's question, first, with regard to diseased queens, I think that it is established beyond doubt. Cheshire and Watson Cheyne, the two men who first described this disease, examined a number of queens and found the ovaries of two or three diseased; that is to say the ovaries contained the organism of foul brood, *bacillus alvei*.



A diseased comb, (after N. E. France), showing sunken and darkened cappings. Also many cells with holes in the cappings.



Cultures of *B. alvei* (after Cheyne). A. Colonies on the surface of gelatine (6 diameters.) B. The same colonies 24 hours later. C. Culture tube; gl. gelatine; p. cotton wool plug. D. Spore becoming bacillus (1800 diameter.) E. Bacillus becoming a spore. F. Spores in line, taken from a gelatine culture. G. Colony developing.

Mackenzie, then bacteriologist of the Provincial Board of Health, now Professor of Pathology in the University of Toronto, also examined a number of queens, and found in the ovaries of some of these queens *bacillus alvei*. Personally, I have examined a number of queens, and have also found this organism to be present; and further than that, I have examined eggs from hives in which foul brood was present and found in these eggs *bacillus alvei*. If any of you come to Guelph at any time I shall be pleasd to show you *bacillus alvei* in the eggs of bees. I have shown that to some bee-keepers. I remember showing that to Mr. W. Z. Hutchinson, of Flint, Michigan, some years ago. I could instance a number of other competent bee men whose names I think you will be prepared to admit stand at the top of the ladder with regard to bees. For instance, Mr. Bertrand, editor of the *Revue In-*

Bacillus millii. *a*, spore formation, showing morphological changes, in agar-agar-plate culture ; *b*, peculiar arrangement often noticed in cultures ; *c*, isolated bacilli, floating in the liquids of the bee or in cultures ; *d*, zooglea, showing the most common arrangement of the spores at the centre, and the separation of the bacilli from the mass. (After Howard).

Aspergillus pollinis, the fungus causing "Pickled Brood." (After Howard).

ternationale d'Apiculture, in Switzerland, alo recognizes the fact that queens are diseased, and in his little brochure upon foul brood he recognized when the treatment from medicated syrup fails it is the removing of the queen because she is diseased. So that I think there are a sufficient number of observations upon this question to show that the eggs may become infected.

With regard to flowers I may say that it is simply a laboratory experiment. It is possible; for I have tried it; and granting the possibility of it it may happen to extend. It is a question which is a very difficult one; it means the taking of blossoms visited by bees from the hives and subjecting them to very careful microscopical studies. I have tried it on a small scale, and I am convinced personally that such is possible, though as to what extent it takes place under natural conditions I am unable to give you any information.

Mr. Byer: What proof have we that foul brood has been transmitted by using foundation made from the wax?

Prof. Harrison: I cannot say it has been transmitted, but I can say I have examined wax which was being used for foundation in which the spores of *bacillus alvei* were found. So if the spores were found there it is possible that they may produce infection. Under the natural conditions you can only look to all these probabilities. We do not know exactly how the infection takes place, but we must recognize all these channels, and if we find foul

brood germs in foundation that must be looked upon as evidence and positive evidence at that.

Mr. Craig: The wax you refer to has never been examined; that was before that was made into foundation; it had not gone through any process.

Prof. Harrison: This is wax which had been boiled and ready to be made up into foundation.

Mr. Craig: In the manufacturing of comb foundation the wax is kept at boiling point for several hours.

Prof. Harrison: Is that always the case, Mr. Craig? That may be from your standpoint as a manufacturer of bee supplies, but is that the case with those bee-keepers who make their own foundation?

Mr. Craig: I would not like to say that it was.

Prof. Harrison: I know it is true from the manufacturers' standpoint, but I do not know how true it is with regard to the bee-keepers.

Mr. Craig: Would the addition of sulphuric acid, which we use for clarifying the wax, have any effect?

Prof. Harrison: Certainly.

Mr. Byer: About ten years ago we were making foundation, and we received about one hundred pounds of wax from a yard badly diseased, and sooner than take any chances we made that into foundation and used it in our own yard, and there has never been a sign of foul brood.

Mr. Dickenson: How long was the wax heated?

Mr. Byer: I could not tell you that. I do not think we heated it nearly as much as in the Weed process.

Prof. Harrison: I think the danger is small. I have arranged them practically in the order of their importance. I have put the ones which are the worst first, particularly the bees robbing diseased colonies. I consider that probably one of the chief reasons. But in making these up I considered that there was evidence in each case. I have not elaborated on each of them, because I thought the paper would be too long if I did so, but there is a probability; just how much of a probability that is I cannot say. It is a channel, however small it may be.

Mr. Holtermann: This matter of the queen transmitting the disease is one which has been up for a good many years, and it certainly is an important matter. I am one of those who are not going to ignore practical results and scientific investigation. I know that Mr. McEvoy says that the disease is not transmitted through the ovaries of the queen, and that he has again and again taken queens out of badly diseased stocks and put them into healthly colonies, and that the disease has not developed in the stock. We should not ignore that. On the other hand we should not ignore the scientific investigation; the two should go hand in hand. I would be strongly in favor of Mr. McEvoy and Prof. Harrison carrying on experiments this coming season in that direction, and if money is needed to do it they should be paid for their work. I do not believe the Inspector of Apiaries is getting as much as he should. He should have more, in order that he may be justified in devoting more time to that work.

As far as the question of foul brood being transmitted through comb foundation is concerned, that was an experiment which, with the sanction of the Ontario Government, I carried on one year. Prof. Harrison supplied culture for the bacteria, and that was put into the comb foundation and melted under as low a temperature as possible, and sheeted and put into the hive. The disease did not break out that season, and as far as I know it never did break out. But I ceased carrying on that line of experimentation

for the Goverment, and what became of the foundation I do not know; it was lost track of. I have felt I would like to see that experiment repeated. I know Prof. Harrison has secured a growth out of the wax, but practical experience would appear to indicate to us it is not transmitted.

Mr. HEISE: Mr. Holtermann has intimated that a deep realization of the danger of the disease should be an incentive, and I believe it will be to action leading up to its extermination. If it is possible that the disease is transmitted by bees from a diseased colony visiting blossoms, there is a danger there that possibly many of us have never realized, and besides that it is a medium over which the bee-keeper has absolutely no control, making it that much more dangerous.

AMENDMENT OF BY-LAWS.

The report of the committee appointed to amend the by-laws of the Ontario Bee-keepers' Association was taken up at this stage and considered.

A lengthy discussion took place on the report. Many prominent bee-keepers taking part. Finally Mr. Darling said the end would be served by simply leaving out a few words, instead of naming the different Ridings as they were named in Schedule A in the Agriculture and Arts Act, and simply giving the counties. The objection was made that the counties were not outlined the same as the different Ridings so that it caused confusion. To remedy that and still make no practical change in the manner of the government of this Association or its managers he had prepared an amendment, which he read.

The by-laws, as amended, were adopted, on motion of Mr. Darling, seconded by Mr. McEvoy. The amended by-laws are given below:

BY-LAWS.

1. This Association shall be known as the Ontario Bee-keepers' Association, and shall be composed of those interested in bee-keeping who become enrolled as members by paying the annual membership fee of one dollar.

2. A general meeting of the members of thisAssociation shall be held once a year, and shall be known as the Annual Meeting, the year to begin with the election of officers at such Annual Meeting and terminate on the election of their successors at the next Annual Meeting. At this Annual Meeting, or at any other general meeting of the Association, ten members in good standing shall constitute a quorum.

3. The time and place of holding the next Annual Meeting shall be fixed by the members present at the Annual Meeting.

4. The Board of Management shall consist of a President, two Vice-Presidents and nine Directors, elected one from each of the following twelve divisions:

Division No. 1—Stormont, Dundas, Glengarry, Prescott, and Cornwall.

Division No. 2—Lanark North, Lanark South, Renfrew North, Renfrew South, Carleton, Russell, and City of Ottawa.

Division No. 3—Frontenac, City of Kingston, Leeds and Grenville North, Leeds South, Grenville South, and Brockville.

Division No. 4—Hastings East, Hastings North, Hastings West, Addington, Lennox, and Prince Edward.

Division No. 5—Durham East, Durham West, Northumberland East, Northumberland West, Peterborough East, Peterborough West, Victoria North (including Haliburton), Victoria South.

Division No. 6—York East, York West, York North, Ontario North, Ontario South; Peel, Cardwell, and the City of Toronto.

Division No. 7—Wellington Centre, Wellington South, Wellington West, Waterloo North, Waterloo South, Wentworth North, Wentworth South, Dufferin, Halton, and the City of Hamilton.

Division No. 8—Lincoln, Niagara, Welland, Haldimand, and Monck.

Division No. 9—Elgin East, Elgin West, Brant North, Brant South, Oxford North, Oxford South, Norfolk North, Norfolk South.

Division No. 10—Huron East, Huron South, Huron West, Bruce North, Bruce South, Grey East, Grey North, Grey South, Perth North, Perth South.

Division No. 11—Essex North, Essex South, Kent East, Kent West, Lambton East, Lambton West, Middlesex East, Middlesex North, Middlesex West, and the City of London.

Division No. 12—Algoma East, Algoma West, Simcoe East, Simcoe South, Simcoe West, Muskoka, Parry Sound East, Parry Sound West, Nipissing East, Nipissing West, and Manitoulin.

Also one Director from the Ontario Agricultural College, and Experimental Farm.

The Board of Management so elected shall appoint from among themselves or otherwise a Secretary and a Treasurer, and shall also appoint at least three of their number as an Executive Committee.

5. Five members of the Board shall constitute a quorum.

6. Vacancies on the Board by death or resignation may be filled by the President, subject to the approval of the Executive Committee.

7. The officers of this Association shall be elected by ballot, with the exception of the Auditor, who may be elected by an open vote of the Association.

8. It shall be the duty of the President to preside at all meetings of this Association; to call for reports; to put motions when seconded; to decide upon question of order, and to declare the result of ballots and elections. The President, in connection with the Secretary, shall have power to call special meetings when necessary. The President shall be ex-officio chairman of the Board of Directors, and shall call it together when necessary.

9. In the event of the death or absence of the President, the Vice-President shall discharge his duties.

10. It shall be the duty of the Secretary to keep and preserve the books of the Association; to call the roll and read the minutes at every meeting of the Association; to conduct all correspondence of the Association; to receive and transfer all moneys received for fees and otherwise to the Treasurer, having taken a receipt for the same; to make out a statistical report for the Association and for the Government; to furnish the officers of the County and District Associations with forms for organization and annual reports, and to give notice of Association and Board meetings through the press or otherwise.

11. It shall be the duty of the Treasurer to furnish such securities for the moneys of the Association as the Board may determine; to receive from the Secretary all moneys belonging to the Association and to give receipts for the same; to pay them out on order endorsed by the President and Secretary, and to render a written report of all receipts and disbursements at each Annual Meeting.

12. Any County or District Bee-keepers' Association in the Province of Ontario may become affiliated to this Association on payment of five dollars, which shall be paid to the Secretary on or before the first day of June in each year; but every local Association so affiliated must have on its membership roll at least five members who are also members of the Ontario Bee-keepers' Association at the time of its affiliation, and must continue to have a like number of its members on the roll of this Association while it remains in affiliation.

13. Every affiliated Association shall receive an annual grant out of the funds of this Association. The amount of such grant shall be fixed by the Board from year to year.

14. All grants to affiliated Associations shall be expended in prizes for honey shows, or for shows of apiarian appliances, or for lectures on subjects pertaining to bee culture, or for advertising district or county meetings, or for any or all of these, and for no other purpose.

15. Every affiliated Association shall report to the Secretary of this Association (on a form to be supplied by the Secretary) before the first day of December in each year, which report shall be signed by the President and Secretary of the affiliated Associations.

16. County or District Associations seeking affiliation should forward to the Secretary an application according to the following form: "We whose names are written in the accompanying form, having organized ourselves into a County (or District) Association to be known as County (or District) Association No.—, desire to become affiliated to the Ontario Bee-keepers' Association, and we agree to conform to the Constitution and By-laws of said Association."

Form of application as follows:

Names of those already Members of O. B. K. A.	P. O. Address	Fees.	Names of those not already Members of O. B. K. A.	P. O. Address	Fees.	Remarks

17. Every affiliated Association that neglects or refuses to pay the annual affiliation fee, or neglects or refuses to forward to the Secretary the annual report on or before the date fixed, may be deprived of their affiliation privileges by the Board.

18. Should an affiliated Association become defunct after the payment to it of the grant from this Association, any unexpended balance of said grant shall be forfeited and paid over to the Treasurer of this Association.

19. Each affiliated Association shall be entitled to the services of an Association lecturer (when such exists) once in each year, half the expenses connected with such a lecture to be borne by the District or County Association and half by this Association.

20. The order of business by which the meetings of this Association shall be governed shall be in the discretion of the President, but subject to appeal to the meeting when objection is taken, when a majority vote of the members present shall decide on the objection, and in such case the vote of the majority shall be final.

21. These By-Laws may be amended by a majority vote of the members present at any Annual Meeting, or at a special meeting of the members called for the purpose of considering the same, and of which at least two weeks' notice shall be given by public advertisement.

A SEASON WITH THE BEES AND HOW TO MANAGE THEM.

By A. E. Hoshal, Beamsville.

I have attended a few meetings of this Association, and I have read the Journals from time to time, and one subject I have failed to get hold of entirely was, so to speak, a general outline of a system of management which covered a whole year, or a general plan which could be filled in in minutiae and detail afterwards. I have noticed bee-keepers begin to build up a system the other way. They get an idea here, and another some place else, and then they try to put them together. It is something like a man starting to build a house. He will go to one manufacturer and tell him he wants a door, and to some one else for two or three windows, and he orders lumber from somebody else in indefinite quantities, and he gets them together and says: "I am going to build a house." And then he tries to patch those up into something the best way he can. The intelligent way is to get a plan from the architect first, and get something which you can fill out. In going at bee-keeping, it strikes me that the same logic holds goods if we are to make a success. Get a general plan in our minds in the first place, and then go to work and fill it out afterwards with such devices and means as fit the system.

In thinking of you this afternoon I prepared this address mostly for what you might call beginners. A good many of you are old hands in the profession, and I am not directing my remarks so much to you in minutiae and detail as I am to the beginners. You have got your plan already started and you cannot vey well change it. In presenting this system it is for the benefit of those who are starting, or have not gone so far, but that they can remedy a mistake if they think they have made such. You will notice here around me quite a bit of paraphernalia, and you may ask me what I am going to do with that old stuff. It is not so nice as you see at the exhibition, but I intend to illustrate my thoughts this afternoon to show you how these different things are done. Now, in choosing the implements to do that with, I have not brought new ones, but right out of our own yard—implements used year after year, and which are still there in use, and we expect to use them for some time to come unless we find anything better. It is just what you would see in the yard. You do not see these polished up things. I have tried to put on things which are natural, and represent them just as they are.

There are three systems of bee-keeping, I believe, that cover the whole ground. There is the box hive system, the movable frame system, and the case system. I presume that it is unnecessary to explain what we mean by the box hive system; bees are put into a hive or box, sometimes into a nail keg, sometimes into a stump and sometimes into these little woven straw hives and left to take care of themselves. When the bees have got them full they will swarm and they are given another one by their owner, and they fill that, and they are given another one; and so on *ad infinitum*. And when the fall comes those that have not sufficient stores to go through the winter are killed, and the honey taken from them. I do not know who is the inventor of this system, but I presume it is the bees themselves.

The next is the movable-frame system. We have hives called the Jones, Root, Smith, and Brown hives, and every kind of hive—double wall, dovetail, and everything else. They all come under one system, namely a moveable frame system. They are built with the idea of manipulating bees, or

accomplishing certain purposes with bees with a system of frame or comb manipulation, and I presume nine out of ten, if not nineteen out of twenty, of those present use that system largely. It is called sometimes the Langstroth system, but it does not make any difference what size of frame or how the frames are made as long, as you manipulate those frames which contain the combs.

The third system is the case system. By that system I mean a system of manipulation by which instead of manipulating combs we manipulate cases to accomplish the different objects which we desire in our work. Cases are built usually with frames. I have here a case. You notice everything in it is solid. The idea of that is to carry out the idea of manipulating your bees through a system of cases. You will notice here I have what is called a frame. (Refers to diagram.) You recognize it at once as the Langstroth frame, and the idea is that the frame is hung in a hive and when you want to do anything with your bees it is done by the manipulation largely of these frames. In the other case it is done by the manipulation of the case.

This afternoon in outlining a system of management for the year, I am going to confine myself necessarily to one system, that system to be the case system. I believe it to be the best because I use it myself. That is natural. And the different manipulations which I shall detail shall be adapted to that, not to the movable frame or the box hive systems at all.

Now, to begin with, I will suppose we are all beginners here. I want a man for the season, and I am going to engage him, and he knows nothing about bee-keeping. It is now about the last of May or the first week of June, and first of all we will go out to the yard and see what is there. If you are a beginner there are certain things which are adjuncts—a smoker, a veil, a straw hat and a bat. Those are the implements which I consider necessary. If you are starting in I do advise you above everything else get a good smoker, not a cheap one or a make shift. If anyone can get along with a poor one it is the experienced man. Next, get a good veil. A great many use this mosquito netting. It is very poor. Use Brussels net, and use no other color but black. Put it over a straw hat. I have noticed when beginners get into the yard they usually wear these things pretty faithfully for about three days over their faces and then they begin tucking them up around the rim; soon after that the veil will be taken off the hat and a few days afterwards will be left in the shop. Another adjunct is an instrument something like that. (Old chisel.) We go to the yard with these and we will see what is there. We go out to the yard with our smoker and veil and what do we see in the yard? First of all, it will be along about the last of May and you will find something like what you see here, a wintering case with a colony of bees in it. They are packed on the outside, and the first operation is to unpack them. It is a simple thing. Along about the last of May or the first week of June you take these off. There may be individual colonies where you will have to take these off earlier in May, but usually about the last of May. To get these off we use an old sheet. Spread it out on the ground. Quiet your bees with your smoker at the entrance. Remove your cover, grip your hive and lift it on to the sheet bodily. Put your foot on the hive, pull up your case and it is off. Next brush your packing down from the hive on to the sheet which is spread around to catch it. Pick up your hive and put it on the stand. Take up your bottom and put your case back on to it. Gather up your sheet by the corners with the packing in it and dump it with the packing back into the case. Throw in the bridge, cover it up and set it away. That is the first operation that takes place about the last of May.

There is a hive I have taken from the case, a single story Hedden hive. Some of the cases will contain these single stories, some of them double stories, just depending on how they have been wintered. To start with, we will deal with the single case first. It is along about the first of June. That case will be full of brood and honey in various stages of advancement, some of it hatching and considerable honey in it not capped, enough to keep them going. It is full, and it is time for the upper honey case to be added. It is done this way: Here is a queen excluder. This may be a couple or a few days after, or if it is not of sufficient strength you let it stand till about the 8th June when the clover just begins to open up better, a short time before that. If for extracted honey, we put on one of these supers. We will suppose that there are some of these which have come out of winter quarters with a double-story hive. We have a different condition of affairs to deal with. Take two hives, one a double case full of honey and brood, and the other one a single case of brood and honey; now, which of those hives would give the best result during the season by putting a case on top? They give about equal results.

Mr. HOLTERMANN: What length of season?

Mr. HOSHAL: My season begins about the 10th June and goes to the 20th of July. You would naturally suppose this double one with twice the bees and twice the brood would give, if not double results, at least better results. It will not do it. To get around that difficulty, and make this double one beat the other, is what we are after now in our management. This larger one corresponds more with the general hive that is used. You would naturally expect from the other hive pretty much the same results as you would from an ordinary movable frame hive. To get at how to deal with that, I have prepared two or three charts. If you have observed your bees, you know it is natural for them to store their honey at the top of the hive and the brood is reared immediately next to it and below. In other words, I have roughly sketched a frame, what may be called a deep frame. I have marked a line just as a matter of convenience to indicate the point where the brood and honey meet. That is the separating point between the two. Above this little dotted line is the honey, below it brood. I do not know whether I have exaggerated that drawing or not, but I presume in a deep framed hive you will find about that much honey. Then your bees in working, as the season goes on, as the brood along the top of this line here hatches, if the honey is coming in sufficiently fast, as they emerge from those cells, will fill them with honey, consequently this honey will be extended downward, extending deeper, all the time. They store it between the brood and the honey, and with the brood it is extended at the bottom downward until there is no more room. On the other hand if the honey is not coming in fast enough to keep that space where the brood is hatching filled, the queen fills with brood again. They are continually working to keep the brood and honey connected there. I have another drawing here, on which I have illustrated it a little further. There is another frame of medium depth, the Langstroth. Notice where the line on that comes. The depth of honey at the top of that frame is not so great; it is shallower; in other words, the shallower you made the frame the less depth of honey at the top of it. Carrying it on still farther into what we call a real shallow frame, I have illustrated it here with this drawing. In that frame the quantity of honey at the top of it is not so great as in those others. Maybe you think that is not fair, that we should put in at least as much honey there as in the top of the others. There is not as much honey at the top of that frame as at

the tops of the others. You will find about what I am showing you here in it, comparatively litle honey at the top in a single case.

Coming back, if we are to arrange our hives so that the bees can store in them according to their instinct, I think it becomes plain at once where the division must be made between the honey and brood departments of our hives. Supposing you were wanting to add space there for the bees to store in, you would add it right along this line. The vacancy to store must be right along where that line comes. Coming back to these I had two hives set up here a moment ago and you will see the analogy between those and the diagrams I have given you. You will notice the single case contains the shallow frame, and the brood is practically right at the top of the frame at once. So that if you put a case on top of that hive as it stands there in the bottom, your bees have got to cross that body of honey to store above it. Consequently, they are working there contrary to their instinct, and you get less honey. To get around that difficulty in this double story, instead of adding a surplus case to that hive, when we start in I take and run the queen into the lower case. We will suppose it is full. You raise the cover and a few puffs from the smoker will send the queen down—you need not hunt for her—out of that upper case into the lower one. As soon as you have her there I raise this up and put the excluder under. When I have shut the queen below I have made this upper case the first surplus case on that hive. I allow that case to remain that way until the brood is sealed. Then if the colony needs more room for storing, this case is raised up and another one put between it and the brood.

A great many may never have thought of the reason why we put cases below next the brood chamber. Why not put the case on top? You all know well enough the bees will not work satisfactorily if you put them on top. If you remember what I told you a moment ago, you will see the reason why. When the case is down here and you put another one above you are compelling them to pass over a body of honey. So in adding cases, when you make an opening for them to store in always make it between the brood and the honey that is in the hive. You notice that there is no honey below that honey board. By putting that case on there with the honey board top, they will give you about equal results. If you treat them properly, this colony will beat the other one all to pieces.

There is another reason for doing this, and that is the cutting off of unnecessary brood. It cuts off a supply of bees that will be thrown on your hands at a time of the year when they are only consumers instead of gatherers, and it prevents them from using a lot of energy in the raising of brood during the season when they should be gathering honey.

We have got these surplus cases on, and the question is what to do next. We have to watch these cases. With this single case on, the management is the same as the double case. When the first case becomes half or two-thirds full we have to add another. That is simply done by, as I said before, raising this up and adding an empty one below it. From the diagram you will understand why the empty one is put below and not above it. Another thing about it is this, the shallower that case is made the more readily your bees will accept it. Now, we let them stand that way until the second case is about two-thirds full. It is raised up and a third one put under and they are left again until that is about two-thirds full, and we raise that up and put a fourth one under, and you continue that operation as long as the season lasts. When the upper case becomes filled, ready to take off, it should be pretty well on to being capped over.

Mr. DEADMAN: Will you kindly tell us when you know that is two-thirds full—when it is ready to lift up?

Mr. HOSHAL: I will show you how I do it. We always quiet the bees at the entrance first. It will stick a little bit, and will need either a jack knife or chisel. Loosen it and look under, and that is all there is to it.

Mr. BYER: But when you have three or four on?

Mr. HOSHAL: Put the three or four on. You will understand that the hive sits on the ground. Catch it a short distance from the ground and lift it. It is first loosened with your chisel. These upper cases are stuck sufficiently that they will not slide. It does not matter whether there are three or four or half a dozen. I raise them, and put the smoker under.

Mr. DEADMAN: Won't the bees come out the side of that hive?

Mr. HOSHAL: No. One thing I want you to notice about this hive is that it is built to carry out a case system of manipulation. If you will look into those cases you will notice you can see right through them, and you will at once recognize the condition they are in. Those frames are only thirteen-sixteenths of an inch wide. They are built intentionally with that in view.

We will now come back to the point where we have about three surplus cases on these hives, and where the early preparations for swarming are made. The first preparation I make for that is clip the queens. Here is one of my devices for doing it. I do not usually clip until the honey-flow starts about the 8th or 10th June. First of all we quiet our bees with the smoker. We raise the hive up and shove it forward, lift it off, and put it on to the three-legged table thus. I then take and smoke them at the bottom of the smoker until I run the bees through this screen into the upper case, and I keep the smoker working half a minute or so like that. I then lift it up, and turn over the honey-board. If I do not find the queen on the top bars I look on the honey-board. I then take her up in my fingers, and with scissors take off one of the wings sufficiently so that she cannot fly. Having done that, I put her back in this case again. I already have driven the bees up into the upper case, and the queen in her attempt to get through is found on the bottom of the honey-board. Occasionally she will stick to the frames, and once in a great while she will run down between them. The smoke down below will fetch her up. She is clipped. That may seem quite an operation for some of you to do, but it is easier done than you imagine. Put the case back on the hive again and set it back. Having your queen clipped you are ready for swarming. Another thing about this clipping business is that some of you may have trouble in clipping your queens with the bees balling them. One of the important features about this is when you return the queen to the colony you return her to an empty case, and by the time the bees are drawn into the case everything is quiet, and it is seldom you will have a queen destroyed. That is the first preparation for swarming. In clipping, when the flow is on there is a less percentage in the loss of queens. If you are running for comb-honey you will have about two or three cases on in handling the swarms. Your colony will either be in your two cases, or possibly three, when they cast their swarm. With extracted honey there will not be over one colony in half a dozen that will swarm. That is the case with me; I will not say it is so in all localities. In handling those swarms we will presume we have a colony; we have got the queens clipped, and are ready for swarming. After those

queens are clipped, and the warming is coming on, the first thing to do is to see that the grass in front of your hive is cut down short. We will suppose that underneath is the hive which has cast a swarm. The next thing is the preparation of the hive to receive the swarm. There is first a bottom board. On that I place an empty case—any box will do. On top of that we put a case of comb. If you haven't a frame of comb, have one filled with foundation. Then a cover. Now we will suppose the swarm in this hive is issuing. Provide yourself with a little cage, and a plug for the end of it. As your queens are clipped they cannot fly. The swarm issues, and you go to the front of your hive and you examine on the ground in front of it, and you will find the queen there if she is out. You pick her up, and put her into this cage, and fasten her there, and put her in your pocket or lay her down where she is safe, and you are master of the situation at once. The swarm will not go away without their queen. Now, as soon as we have caught that queen, and the swarm is out of the hive you are ready for operations. You lift the upper cases off your hive and set them down anywhere. Take the brood case off, and turn it around to one side. Take this other hive which you have prepared, and place it on the stand where this one came out of—so. If you have a honey-board put it on, or take the one off the other and put it on. Take the case removed from the other hive that the bees are working in, bees and all, and put them on here—so. Cover up the parent colony, pull up two or three handfuls of grass, and close that entrance, or else move the hive a little way off, so that the bees on returning will not go back. Now you have got your queen in the cage placed on the entrance, and in a few minutes the swarm will come back. When they start back seeking their old home, the new hive is ready for them, and the queen is at the entrance. As soon as they have started in take the cage, remove the plug from it, and let the queen run in with the bees, and the bees will go in and go to work. You leave them in that condition for two days, when you begin to operate again on them. The second day after they cast the swarm you need this arrangement again. (Refers to box with three legs on it). If you can lift your hive bodily on to this so much the better. You quiet the bees with the smoker, and put a cover on that hive, and lift it bodily onto the stand again. You remember that this lower case is simply an empty case. The reason why that is put on is if you run your swarm into one of these single cases the chances are they will leave it the day following. This lower case is simply put on to hold the bees till they are established. A double brood chamber is far too large, and you will not get the results from it that you will from the single one. You blow a few puffs of smoke until the cluster which has gathered into that has run up into the upper case. You can take your hand and pull out the little bit of comb that is built there. Pick this hive up, leaving your empty case there, and put it down here again. Put back these cases on those, and if that colony of bees is ever going to do work it is going to do it now. The one thing you will have to watch is to keep them supplied with cases. If the honey flow is good and the swarm is strong, it will surprise you how fast they will fill them. The only think you need to watch out for is, do not let them get honey-bound. In filling these cases in ordinary seasons with comb honey, when the honey flow is strong, about once a week you will have to add a case. Sometimes it runs from five to six days, and other times two weeks.

The next operation is to peep into this parent colony. It is going to cast a second swarm in about eight or ten days, and that is something you do

not want. As soon as this colony is settled, I move the parent colony around. Some time during the week I will take it and move it around again a little. You will understand that the parent colony contains the queen cells, and when the first of those cells hatch out that parent colony is going to cast what is called a second swarm. Those cells will hatch some years in eight days, while in other years it may run ten or eleven days. If you have been at it some time you can tell by the examination of those cells. For the beginner I recommend the following: On the seventh day I took the parent colony up, and set it down on the opposite side of the hive. That means all the bees which have flown from that parent colony, when they go to the field and come back in search of their home will return to the old stand and find it. Their hive being gone, they do the next best thing and unite with the colony near it. That takes out of the parent colony all the bees which can fly, and it is done just at the time when the queen is hatched. Consequently, when the queen is hatching at that time she has no bees that can fly, by which she can form a swarm and take them off. On the other hand, if it is about eleven days, they will gain sufficient strength in that time to cast a swarm again. So I give them another move. About the tenth or eleventh day I take them up and set them down and put them where I want them.

Another factor in the manipulation of our yards comes in now: spring management. Begin it while the swarms are on. There are three elements in order to have successful spring management. One is good queens, another is plenty of stores, and the third is warmth. I might add a fourth, and that is, let them alone.

We provide for the good queens now. If any of your colonies lack good queens, now is the time to remedy the defect. We will suppose you have a colony that has done extra good work, and you want to breed. After it has cast a swarm, you raise that up, and you will find that the queen cells have been built along the bottom bars. Just before they are ready to hatch you get a jack knife, and go along and nip them off and slip them in what we call the cell protectors. That cell will hatch in a couple of days. You have some colonies you want to re-queen. You go to colonies that have cast a swarm a day or two before these form, and take a knife and knock off the cells. I take this protector, and put a little pin through it crosswise, and shove it down between the combs, and when that cell hatches there is your queen. I have raised queen cells in nurseries, artificially. Some of the cells I am doubtful about, whether they are going to hatch or not. I take the little blade of my knife, and split them down carefully, spring them open a little bit, look in, and if they are all right close them up and stick them in the protectors, put them in the hive, and they will hatch. You can tell the age of it, too. You can pick an extra queen in the same way. If there are any of your young queens whose blood is not up to the mark, and you want to give them a superior strain, that is the way to do it. If you want a good strain of bees breed from the best, and you will find it will pay.

We will suppose that the season is now over, and we have got to the end of it. When these cases are finished, no matter whether with comb or extracted honey, I recommend taking them off. For that purpose I use the Porter escape. That escape will clear any case of queens, unless it has a queen in or brood or is put on too late in the season when it is cold.

Another thing I want to draw your attention to is this. By these diagrams you will notice, if your locality is like mine, that by the last of July you will get no more honey. When you take your honey away from

them in July, your bees are in a starving condition from the system we have adopted. You must be careful when you are taking the honey away that you do not take it all away. Leave the unfinished case, or lower case, on to prevent starvation. Another way is with the double cases. You noticed when they were there in the spring you raised one up, the brood case became the surplus case. That honey is unfit for market, it is only fit for feeding back to the bees again. Now is the time, when the bees are in the starvation stage, to use that honey. If you are in a place where you have lots of honey during August, and have buckwheat and so on, after these cases are all off there is no harm in simply adding another case, and letting them fill it up. They may gather sufficient stores to run them through the winter. If they do not you can feed them later on. I prefer myself, for wintering, one case; but I very often use two. You have got to September. When September comes, if your colony is weak, confine them to one, but if there is a good strong colony it will do no harm if you leave them with two cases. For storage room it is all right to leave it on, but for myself I would as soon keep it as a surplus case. Take the boney out of it, and confine them down to one case. I extract in July, and take my honey all off except what is necessary to keep them from starvation in August.

The next in order is the preparation for winter. If I have any uniting to do I do it in July, just as soon as the honey flow is over. Do it at once. Don't wait. I simply do it by piling one hive on top of the other. I do not care if the bees fight each other or not, it is brood I am after, not the bees. I do not pick the strongest colonies to keep through the winter, but I pick colonies with the best blood. The old bees are of no particular use to you at that time of the year, but the brood is. The brood hatches and gives you your colony.

It is now the middle of September, and we will say you are ready for the winter. Here is your hive, a double-case one. That hive, in order to go through the winter, must not weigh less than fifty pounds in all; but if it weighs more than that it is better.

Mr. HALL: Nothing less than fifty-six.

Mr. HOSHAL: I often winter on fifty, but I prefer fifty-five or sixty. With the single case they must not weigh less than forty pounds, and as much more as you can make them. I have a simple pair of platform scales that I put on the wheelbarrow and take out to the yard. I come to this hive, and put it on the scales and see what it weighs. I take my pencil and mark it on the hive, and so go over the whole yard. Now a single case with bees, empty combs and all, weighs seventeen pounds; a double case with bees, combs and all, weighs twenty-five pounds. Everything over that is honey. If they are lacking in stores, and you have not the combs of filled honey to give them, it becomes necessary to feed them, and for that purpose we use a feeder like the following. The feed we use is syrup made from granulated sugar and water, one pound of granulated sugar and one quart of water, and bring them to a boil. That is all we do. Here is a board with a hole in it, and a block to cover it. We take off the cover of the hive, and put that on. My feeder is made with a little piece of perforated tin in the top of a glass gem jar. The jar is inverted over the hole. You perhaps think this water in the jar will run out when inverted, but it will not. Another part of spring manipulation is abundant stores, and have it in time.

Now the preparation for wintering outside itself. We come back to the wintering case. It fits the stand which the hive stands on. Pick

up your hive, and put it on to it and pack it underneath. That done we put in a bridge, keeping the entrance from being closed, and the case is put on. Snugly pack it all around the sides. You will notice this cover has a hole in it. Here is another arrangement that has a hole through it, and a hole in the bottom of it with a screen over it. This is placed on the cover so that the opening in this comes over the opening in the cover. The ends of this communicates with an opening in the side of the case. There is your ventilator, and you put your packing right in through the whole thing. It is not to furnish pure air that we put that ventilator on, it is a matter of dryness. Where we use the single case we use this form of ventilator.

Mr. McEvoy: For the want of that you killed all your bees last winter?

Mr. Hoshal: When the spring arrives along in March, as soon as it is warm weather, after St. Patrick's Day any time, these ventilators are removed, and the entrances closed up to about half an inch with the entrance blocks, because, if at any time of the year robbers are going to be disastrous, or do harm, it is in the early spring. As the season advances, and the bloom starts to come out, they begin to be crowded, and you can spread those blocks, and as it goes on farther you can take them out entirely, and let them go to the last of May or the first of June, until you come to the point where we started. In the spring leave your bees severely alone. Provide them with good queens in July, and see they have abundant stores in September, and that they are thoroughly packed and kept warm.

I have not gone into the minutiae in this, I have simply outlined this system of management. You will see it is complete from start to finish. I have done it for the benefit of those who may be starting. You notice the peculiarity of it. From start to finish we have manipulated our bees by means of cases without frames, and the various manipulations through the season can be carried out in the same way.

Mr. Craig: What kind of packing do you use?

Mr. Hoshal: Sawdust or chaff, or cut hay, or dry leaves.

Mr. Byer: In the event of foul brood being prevalent in your district, would you have to go through every comb to look for the disease?

Mr. Hoshal: No, we do not. While these are intended to be used in the manipulation of cases, do not understand me that we cannot get these frames out at all. Where you want to see any case of foul brood back to the bottom of it, you have got to take the frame out to do it.

Mr. Dickinson: You recommended giving them a severe letting alone. I want to be on the watch for that foul brood all the time.

Mr. Hoshal: That was only in the spring, for spring management. That is up till the first of June. I will tell you why. You will find that if you are in the habit of handling your bees early in the spring a great many of the queens will be destroyed.

Mr. Evans: You spoke of your bees swarming and setting the old hive to one side. What is the matter with taking the old hive away at once?

Mr. Hoshal: At that time of the year the brood is hatching all the time, and during the time a considerable quantity of that brood will hatch, and the bees mature up to the flying point in their lives, and that queen can take off a swarm when she hatches. When you put that hive around there,

you drain it of all its flying bees at that time. It has got to raise a lot of bees before it can cast a swarm.

Mr. Heise : You recommended to bring the syrup to a boil. Is it not sufficient to know that the sugar is all dissolved ?

Mr. Hoshal : Certainly. But I think to make sure work of it I would recommend boiling.

Mr. Newton : In producing comb-honey, are they not apt to get some pollen in the section by using one story ?

Mr. Hoshal : No.

Mr. Newton : You said you would sooner have full combs ?

Mr. Hoshal : That is for extracted honey.

Mr. Newton : I only use those combs for extracted honey; for comb-honey I use foundation straight. You would not get pollen in there ?

Mr. Hoshal : I have not experienced any. I hive my swarms on combs if I can get them at all, and there is the place where the pollen will be stored.

Mr. Holtermann : You do not make any distinction between combs you use in the brood chamber and for extracting ?

Mr. Hoshal : I do not any more than this; combs I have been using for the brood chamber I keep for that purpose, because they become darkened and soiled.

Mr. Holmes : In the swarming season, in removing the queen cells, you tell us that you find the cells along the bottom bar when you turn up your case in your system of management. Are we to understand that is an unbending rule ?

Mr. Hoshal : There may be odd exceptions, but in nine cases out of ten that is the rule. If you want to be absolutely sure of that without a mistake you hadn't better trust to that, but better turn your case upside down. I don't believe it is thoroughly appreciated amongst you the difference that it makes in results from your colonies by having your brood chamber full of brood and moreover having it shallow. The average distance of your brood from your surplus case is about eight inches. With the shallow frame it would be an average distance of five inches. The nearer you can get your brood to your surplus case the better. Some might say when you hive your swarms contract your hives down. You will not get as good results because the average distance of our bees and the brood which is contracted is greater than in the case that is shallow.

Mr. Holtermann : Do you not find a very distinct tendency when you make your frame shallower that the circle does not work one way, but the other way, and that it curtails the brood on the outer sides when you get beyond a certain depth and make them shallow ?

Mr. Hoshal : Yes, it does.

Mr. McEvoy : Will Mr. Hoshal explain about letting off the steam in zero weather. Mr. Hall and I are in a quarrel about it.

Mr. Hoshal : I would say in simple words, let it off, and without giving any reason.

Mr. Grainger : Do you have any packing in the top of your cases?

Mr. Hoshal : They are buried in the case.

Mr. Grainger : The idea I had, speaking about the ventilator, was would not some chaff packing there effect that, and still keep them warm ?

Mr. Hoshal : I guess it would if you do not pack them too tight; but you must be careful to give them a vent.

Mr. Grainger : It is not so much the ventilation as keeping them dry.

Mr. Hoshal : That is the idea. Chaff will absorb moisture.

Mr. Pettit : I would think that another point in connection with what Mr. Grainger has mentioned is that the packing should not touch the cover of the outside case, and the ventilator could be near the top in each case and the air could draw through over this packing, and there would not be the direct steam escape.

Mr. Hoshal : I was one who lost heavily in wintering last season. Now, if you ask me how to winter outside, I will tell you plainly I do not know how. I will tell you some things I went through this last winter, and, which I took occasion to find out. I have had a suspicion for a long while that moisture in the hive very often, particularly in cold weather, was detrimental to the good wintering of bees outside; that they had to be kept dry. I experimented along that line for some five, six or seven years, and I could never find a winter suitable for experimenting. But I used this ventilator. I could not strike a winter that would put the things to a test. During that time when I was packing there were some outsiders that came into my yard and stole the idea from me, and went away and fixed theirs up that way. Last fall I was in a little bit of a hurry, and did not put my ventilators on to try it. Some of the people who had been to my place and taken this idea, and had the ventilator on, found that their bees went through while mine went under. Mr. Jones, we will call him, had twenty colonies of bees. Out of those twenty he sold six or seven to another man about half a mile away. This other man took them home, and lost every one of them. They were shut up tight. The other fellow who had them there, and had my ventilators on like this, using a Hedden hive which was rigged up, carried his through without a single loss.

Mr. Byer : Do you have felt next to the frame or board ?

Mr. Hoshal : I bore an opening. Another thing this man said he had to keep these ventilators open because they would freeze shut. I went to another man not half a mile from me, and half of his bees went under and the other half came out. He had about seventeen colonies; he had ten in movable frame hives and the others were in common box hives, warped up with the sun, cracked open and everything else. Every one of his new hives went under. The old ones riddled and split up by the sun, and so on, came through. Another man, not over five miles from me with the Hedden hive, etc., never packed his bees at all in the double case, but set them in the open, right in a fence corner with the honey board on, and loose covers, and they came through in the very best condition. In carrying out the same idea, I wintered quite a percentage of my bees in the cellar. Unfortunately last winter, or near the spring, the drain of the cellar froze so that during the night the cellar flooded and submerged the lower row of hives right around. You would naturally suppose those bees would all come out dead. They did not; they lived through the ordeal to my own surprise. The combs were thoroughly soaked when I went to take them out of the cellar, and I didn't expect to find one of them alive, and was much surprised to find half of them living. I put them outside and they only survived about a week after they got out. Another thing in this wintering question: if you will follow it up and look over those that have gone under, colony after colony, you will find that every one you looked at without an exception

showed signs of being wet inside, and that wet never got there from the outside.

Mr. Alpaugh : Do you always leave those painted covers on ?

Mr. Hoshal : Yes, I generally do.

Mr. Alpaugh : If you will take that cover right off, and make a honey board of some material, and pack right over it, you will be all right.

THE INFLUENCE OF BEE JOURNALS.

By W. J. Craig, Brantford.

Considering the subject of the influence of bee journals broadly, we may rightly apply much of what has been said, and can be said, of the influence of current literature generally. We live in an age of literature, an age when people read a great deal and think a great deal, and whether in the form of newspaper, magazine, book or pamphlet, such reading must necessarily wield a large influence over the individual and community in the formation of opinion, the moulding of character and the regulation of action.

Bee books and journals have taken their distinctive place among the literature of the world. From recent statistics we find that there are over 80 magazines devoted exclusively to bee-keeping :—France leads the way with 19, Germany 11, Russia 9, Belgium 9, United States 7, Austria 6, Italy 3, England, Spain, Algiers and Australia 2 each, Denmark, Switzerland, Sweden, Norway, Holland, Romania, Nederland, Ireland, and Canada one each. These magazines must, as a matter of course, have an effect upon the bee-keeping of the many thousands of readers they represent; all of them advocating better bee-keeping, better systems of management, better marketing, presenting new theories, reporting new discoveries and inventions, vieing with each other in original matter from the best authorities, and in carefully selected matter from the most reliable sources, standing up for the right and exposing and denouncing the fraudulent and the wrong. All this can be truly said of present day bee journals. They are in brief doing all that they possibly can for the furtherance and development of the bee-keeping industry. This statement may no doubt be questioned by those that consider the motive of the bee journal always a selfish one, and that it exists merely for the sake of direct gain to the publisher, or a desirable adjunct to his business. Such view is narrow and mean and selfish in itself. None of the journals that we know of are making a fortune; in fact some of them would have gone out of existence long ago had it not been for the substantial financial support of their publishers.

Guide books and hand books on general management are good and useful as references, or for the beginner in laying a foundation of sound apicultural knowledge; but if the novice is to advance, with advancing thought and advancing methods, he must have access to current bee literature. The bee-keeper's column of the newspaper or agricultural magazine, no matter how well conducted, cannot be satisfactory to the bee-keeper who would make a success of his bee-keeping, and can never take the place of the journal devoted exclusively to apiculture; in fact the most dangerous and obstinate heresies that bee-keepers have had to contend with have issued from these sources.

Local conditions and requirements, apart from loyalty to state or country, make the support of the local representative magazine of first importance, then as many others as the bee-keeper feels he can afford. Unfortunately the great mass of small bee-keepers do not seem to have a proper estimate of the value of apicultural information. They are interested to a very small extent—"only a few hives for their own use," they tell us, but somehow more or less of their ill-favored product finds its way on the market, to the detriment of the excellent article placed there by the intelligent producer. There are probably upwards of 8,000 such bee-keepers in our own Dominion, whose bee-keeping is of the crudest character.

Our Canadian publication needs the co-operation of this association much more than it has been favored with. There is no lack of ability on your part to make the *Canadian Bee Journal* more distinctly Canadian, and to rank, like Canadian honey, the "first of its kind."

Mr. Holtermann : I would just like to say as one who has in the past been connected with bee journalism, and has seen its difficulties, that, as has been said in that paper, there are able bee-keepers in this country— men who are in a position to give to the public and to the press that which would be of great value, not alone to this Dominion, but which would be of value in the bee literature in other countries. I would make this plea for the *Canadian Bee Journal*, a special paper, that you try to support it not alone by subscribing for it, but by contributing to it. There must be small beginnings in everything, and as far as we are concerned we have not got the population that the United States and Europe has, and if a journal is to be successful you must help it. The circulation cannot be large, because in the United States everyone takes a United States journal first, and then afterwards another one; so if you take the *Canadian Bee Journal* first and afterwards the others, and help it with your pen and write for it, the time will come when its circulation will increase, and in a measure you would be rewarded for that which you may contribute to it. There may be in a journal something we do not agree with. There must be progress. Express yourself freely upon the subject of controversy, and allow others to do the same, and give each one credit for wanting to do that which will advance the interests in the best possible way.

Mr. Deadman : Mr. Craig has made a very curious statement when he says that a large number of bee-keepers never take any bee journal. It is really surprising how many there are. It is a disgrace to the bee-keepers of Canada to take any other journal in preference to the Canadian one. As Mr. Holtermann says, take the *Canadian Bee Journal* first, and then if you wish, any other journal. How many of us would care about being without a journal, and when we have one we should give it our support.

Mr. Smith : I was much interested in Mr. Craig's paper on bee journalism. I can remember the time, twenty-five years ago, when we had no bee journal in Canada. The only items we saw were probably clippings and little items in the daily and weekly press; and we used to look for those, as beginners, every week, and if we found anything new, we would say, "there is another bee item." It is really surprising there are so many that do not take the *Canadian Bee Journal*. They really do not know what they are missing. There are few numbers but what you may learn something from. For my part I would not be without it if it cost twice as much, and we take three journals. I think it is what we want, to keep posted in our own country at any rate. The foreign journals are mostly devoted to their own countries.

Mr. GRAINGER : Although I have a little interest perhaps in the *American Journal* and in *Gleanings in Bee Culture*, still I am a loyal enough Canadian to wish to see the *Canadian Bee Journal* prosper. I was well pleased with the last number. I think every bee-keeper in Canada, and some that do not live in Canada, should have it. I noticed a while ago in Mr. Craig's paper that a little country like Belgium can support eight journals, and if they can do that surely we in Canada ought to be able to support one good Canadian journal or more. I think we ought to try and do all we can to make the *Canadian Bee Journal* a success.

Mr. CHADWICK : I was thinking last winter if our directors would take a little more interest in this it would be a great advantage to the *Canadian Bee Journal*. They all have neighbors and if they could speak a word it would be an advantage.

Mr. HOLMES : If I was not a supporter of the *Canadian Bee Journal* I would be ashamed of myself. I think we should take first the *Canadian Bee Journal*, and then as many others as we see fit. The "Made in Canada" rings in our ears, and let it continue to ring. (Applause.))

The PRESIDENT : I am afraid one great trouble is we are too lazy to do anything for the *Canadian Bee Journal*. If we would take the time to help it a little, it would make it more interesting to us and many others too.

Mr. DICKENSON : I think it would be well that the members of this Association endeavored to get another member to join the Association, and thus subscribe to the *Bee Journal*. I think if every member would get another subscriber that would do a good deal to help the *Journal*, and we might pick up some of those new men that would join the Association some one who would not be as lazy as some of the members who belong to the Association now.

Mr. DARLING : There is one point that has not been touched yet. You know I rather think we all pride ourselves a little bit if anybody tells us we are thrifty. We come across individuals, some of the stamp we heard about a little while ago, just keeping a few bees for their own use. It is a very hard matter to convince some of these of the benefit of becoming members of the Association or of taking the *Journal*. You cannot convince them in any way that it is going to be of any benefit. I do not know that I could do better than say right here what was said by a man that you would expect better of. Some years ago, after this Government grant was given to the Association in order to help affiliated societies, and the by-laws were made in such a way, there was a certain old gentleman who was well enough up in the community, who had received the highest gift in the power of the people in the county to give him, and had been looking forward to Provincial honors, who said to me one time, "Would it not be possible for us to get some of this money ourselves, this Government grant?" I said, "Certainly it is." He said, "By all means let us have it." I said, "You are one of the men I want to talk to. In the first place we will have to form a County Association ourselves, and it is going to do all of us and others good. By sending a certain number of names to the Ontario Society, and complying with certain rules, we will get a grant of $20, if there are not too many societies affiliated. We will have to spend this money in advertising the bee industry, and promoting the bee-keepers' interests, and use it to the best possible advantage to help it along. We are not going to get it to put in our own pockets." He said, "I do not want to have anything to do with it at all." It just dropped right there. That is about the ground they take, not only with regard to affiliated and county societies generally, but with regard to supporting our bee journals or becoming mem-

bers of the Association. We have this difficulty to deal with more largely in some sections of the country than others. I find it is a pretty serious difficulty to deal with in some places.

Mr. CRAIG : I thank you for the kindly things you have said about the *Journal*, and I hope we will hear from a good many more members of the Association and Canadian bee-keepers than we have ever before. Someone spoke about "Made in Canada." That is all right. We are always proud of the motto, but sometimes we are a little discouraged when we feel we have to import so much material to carry out this "Made in Canada."

QUEENS AND THEIR INFLUENCE UPON SUCCESS IN BEE CULTURE.

By W. Z HUTCHINSON, FLINT, MICHIGAN.

(The author was unable to be present, and his paper was read by Mr. Pettit).

I expect it will be called heresy, but, many times, when reading extravagant expression about "the whole of bee-keeping centering up on the queen," I have felt like exclaiming : "Other things being equal, one queen is as good as another." This may be putting it stronger than it will bear; besides, it does not exactly express my meaning. Perhaps I cannot make myself exactly understood, but I will try. It is not so much what a queen is *herself*, as what her ancestors were; or, rather, what her *bees* are. That is, she may be an insignificant looking specimen, may have been reared in a manner wholly at variance with the established principles of queen-rearing, may be one of those short lived affairs whose days are soon numbered, yet, if she comes from the *right stock*, her bees, whatever may be the number of which she becomes the mother, are *just as good bees as can be produced.* In other words, there is no system of queen-rearing that will improve a strain of bees. Try and not misunderstand me. To be sure, we must have queens that are sufficiently prolific to keep the brood nests full of brood at a time of the year when this is desirable; and possessed of a longevity that will enable them to perform this feat two or more seasons; having this, what more is needed ? As a rule, the honey producer need trouble his head very little about the rearing of queens. The bees will attend to that, and rear just as good queens as are needed. If his queens does not fill the brood-nests in the required season, how much more practical it is to simply reduce the size of his brood-nests until the queens *do* fill them, instead of ramsacking the earth for more prolific queens, or else by twisting, turning, and shifting about of combs, endeavor to make one queen lay an increased number of eggs ?

As I look at the matter, in the light in which I am discussing it, the queen is simply the vehicle of transmission from one generation to another. It is the *qualities* to be transmitted, rather than the *vehicle* of transmission, that should receive our attention. To illustrate : A man has a strain of bees that are of little value as honey gatherers. Can he, by any sort of "jugglery" at queen-rearing, transform them into energetic workers ? Something might be done in the way of selection, but not by methods of queen-rearing.

Bee-keepers often tell how much better are the bees from the queen secured from this breeder than from the queen bought of some other breeder; or that the bees from the daughter of a queen from a certain breeder are su-

perior to bees from the daughters of some other queen, and they have argued from this that the queens, and the manner in which they were reared, caused the difference in results. I say *no*. The difference is in the *strain of bees*, and not in the manner in which the queens were reared.

That there *are* circumstances in which much depends upon the queen it is idle to dispute. Some of our best bee-keepers have argued against extra prolificness in queens, some of them even going so far as to assert that prolificness in the queen is at the expense of quality in the bees; but that prolificness is all-important to the user of large brood-nests can not be dodged. *He* must have prolific queens, else one-half of his brood chamber is transformed into a store-room. But this extra prolificness is not secured by some peculiar method of queen-rearing, but by *selection*—by rearing queens from the colonies having the most prolific queens. Here, again, the queen is simply the vehicle for transmitting the quality of prolificness from one generation to the other.

The *age* of queens may also have some bearing upon success. Where the harvest ends with white clover, more surplus will be secured if the bees do not swarm; and colonies with young queens are far less likely to swarm. Then, again, young queens lay much later in the fall, and this has a bearing upon the subject of wintering, as also does the time when they begin laying in the spring.

As I have already said, we need queens sufficiently prolific to fill the brood-nests with eggs at the season of the year when this is desirable, and possessed of a reasonable amount of longevity. This secured, nothing more needs consideration except the *stock* from which they come. Naturally, when a man buys a queen, he expects to get the worth of his money. If he buys her to rear queens from, he expects her to be able to endow her royal offspring with the qualities and characteristics of her ancestors; and, if she does this, he need not mourn if she lives only long enough to allow him to secure a goodly number of her daughters. If he buys queens in large quantities to re-queen an apiary, he has a right to feel that he has been cheated if the queens live only a few short months. The practical honey producer has not this problem to solve. Simply let the bees rear their own queens, and they will be as good as any. That queens can be reared artificially, the equal of any, there is no doubt. Most certainly they can. How it can be done has been repeatedly published.

As I said at the beginning, we have a lot of sayings something like the following : "Good queens are at the foundation of bee-keeping." "Bee-keeping all centres about the queen." "As the queen lays all of the eggs, of course, success depends upon her." It is to combat such ideas as these that I have written. The queen is of no more importance than the hive, the combs, or the location. By importance I mean, in this case, that which can by some decision, or management of the bee-keeper, be made to contribute to his success.

Mr. Pettit : I have read this paper before you, but I hope you will not think that I endorse all the points that are to be found in the paper. The paper was just given to me, and I had not time to look over it very carefully; but there is one point in particular that I would like to emphasize, and that is, that we must not attach too much importance to the queens, He seems to think we are laying too much stress on the value of good queens, and yet at the same time he says to be sure we must have queens that are sufficiently prolific to keep the brood-nests full of brood at the time of the year when this is desirable. That is just exactly the kind of queens we want. Then a little further on he says, if the queens cannot fill the brood

chamber, make the brood chamber fit the queen. It seems to me that is very poor reasoning. He says it is more practical to reduce the size of the brood-nest than to ransack the earth for more prolific queens. It seems a very strange argument to lay before breeders of stock of any kind to say that there is no use taking a twelve quart pail to milk an eight quart cow; and Mr. Hutchinson seems to say that if you have an eight-quart cow simply get an eight-quart pail, and you will be satisfied.

Mr. Hall : It is much easier to reduce the size of the hive than improve the queen, but it is a short-sighted policy. The queen certainly is the mother of the colony, and they take after her, and if the queen is not good it is better to get rid of that queen and breed from your better stock of queens. I think I have bought three queens in ten years, and I do not want any more. I simply want a little fresh blood. I think we can raise queens here perhaps better than they can south, but perhaps we cannot raise them as early. Our honey beats theirs, and most likely our queens do. If you have a poor miserable queen pinch her head of and run the risk of getting a better one.

REPORT OF THE INSPECTOR OF APIARIES.

By Wm. McEvoy, Woodburn.

During 1904 I visited bee yards in the counties of Norfolk, Brant, Simcoe, Victoria, Perth, Oxford, Wentworth, Lincoln, Peel, Grey, York, and Ontario. I inspected ninety-one apiaries and found foul brood in thirty-two of them, and dead brood of other kinds in many others.

The spring was one of the most unfavorable for bees of any that we have had in many years. At no time during the spring did bees bring in honey fast enough to keep pace with the amount of larvae that required feeding, and the result was that more or less starved brood was to be found in every apiary. I received many samples by mail of starved brood asking what it was, many dreading it to be foul brood because some of the capped cells of brood were punctured. I also received samples that contained both foul and starved brood in the same comb.

I set the bee-keepers to feeding in every apiary that I examined during April, May, and the early part of June. I was much pleased with the way the bee-keepers took hold and cured their apiaries of foul brood.

It is one thing to know how to cure an apiary of foul brood in the shortest possible time, and to do it with the least loss, but it is quite another thing to handle and manage all classes of men, and particularly so when things get into hot dispute over the sales of diseased colonies and notes for large amounts have been given. No man on earth can deal with cases of this kind so well as the Inspector. I always claimed the right to have such cases placed in my hands to deal out justice to both parties, and I am pleased to say that they were always left to me and that I got things settled very nicely.

Death makes big changes, and where the widows had diseased apiaries and wanted to sell the bees I managed the business for them, and had everything put to rights as nice as the flowers of May, and secured fair prices for them.

In every locality that I went into I picked out the best bee-keeper in it to go the rounds with me; so that he could (on the quiet) let me know from time to time how the people were getting on at the curing. By keeping in

touch with the business this way I was able to get everything put to rights with the help of the good men that I picked out to pad the road with me.

With the help of the men that I have referred to, I have not only driven the disease out of the Province in the most wholesale way, but have converted the foul brood apiaries into the best paying ones in Ontario.

No Province or State in the world has had as much foul brood in it as Ontario had when I first started out to cure the diseased apiaries of foul brood, and now no country has as many fine clean ones for the number kept.

For the very courteous treatment that I received from every person while on my rounds I return to them my most heartfelt thanks. Time, car fare and livery, $621.

WM. McEVOY,
Inspector of Apiaries.

Woodburn, Nov. 14, 1904.

Mr. HALL: I have been out with Mr. McEvoy three times, and must say that he always leaves both men and women good natured. Sometimes, at first, they wanted to fly at him like a cross bee, but before he left they are all nice and quiet. I thank Mr. McEvoy for all the taffy he has given, and I think this Society should thank him for all the good he has done.

Mr. HOLTERMANN: I might say that last year after the report came in I said something upon this question, and I would like to say this year that as far as I know I am very pleased to say that Mr. McEvoy has done his work wherever he has gone in a very thorough and satisfactory way. I am sure we are all pleased that that should be the case. As far as I am concerned I have never had a particle of doubt that there is no man in this Province or Dominion that can do the work more efficiently than Mr. McEvoy can. I would like to ask him a question in connection with the wax press. Are they the same machines used for rendering the foul brood wax?

Mr. McEVOY: Yes, it is the Root press. I had a good press called the Gemmell press, but I wanted to loan it; and I loaned mine in one part, and I got a Root press and loaned it out in another part.

Mr. HOLTERMANN: Is there great care taken to disinfect these presses before they go back and forth in the country?

Mr. McEVOY: We give them a good scalding out.

Mr. HOLMES moved, seconded by Mr. Brown, that the report be adopted. Carried.

DIRECTORS' REPORT.

The year just past has been a very peculiar one for the bee-keepers of this Province and of the northern and eastern portion of the United States, as well, in that there was an almost unprecedented loss among bees. This fact, coupled with the rather poor honey season, has resulted in a very small crop of honey. We have the satisfaction, however, to report that the quality of the crop secured has been up to the average.

The sum of $200 was set apart for the affiliated societies. This was expended in accordance with the by-laws.

There was no money granted to the different agricultural societies during the year, but we have added $50 of the funds of the Association to the special grant from the Government for the prizes and other expenses of the Fruit, Flower, and Honey Show.

The *Canadian Bee Journal* has been sent to each member of the Association as usual. As you will see by the reports of the different officers we are able to report our finances are in a healthy condition, notwithstanding our extra expenses during the year.

All of which is respectfully submitted.

Upon motion, the report was received and adopted.

TREASURER'S REPORT.

Mr. M. Emigh presented his report as Treasurer, duly audited, and on motion it was received and adopted. It will be found on page 3.

AFFILIATED SOCIETIES REPORT.

The following ten societies have been in affiliation: Glengarry, Middlesex, Norfolk, Russell, Brant, Haldimand, Halton, York, Oxford, and Victoria, and the total membership of these societies is about 160.

Each society receives a grant of $20 from the Ontario Bee-Keepers Association, which has been expended according as the by-laws direct. The reports indicate a poor season generally.

W. COUSE,
Secretary.

The report was received and adopted.

REPORT OF THE HONEY EXCHANGE COMMITTEE.

Mr. Sibbald presented the following report: Blank forms were sent out by the Secretary to all members of the Ontario Bee-Keepers' Association. Many filled in the reports and returned them. At least 80 per cent. of the reports were before the committee when they met at Streetsville.

The honey crop, fruit crop, old honey on hand, and the loss of bees in the previous winter, were considered.

Your committee advise you to try and secure about 7½ cents per pound for honey in barrels, 8 cents in 60 lb. tins, and from 8 1-2 cents to 9 cents in 5 and 10 lb. tins; comb honey from $1.65 to $2.25 per dozen.

These prices, as the market since and at present, assure us that from such reports from bee-keepers in all parts of the Province a fairly accurate estimate can be arrived at as to crop and prices to be realized on the same.

Mr. HOLMES: I think that getting the honey crops and prices is one of the best things in connection with the Ontario Bee-Keepers' Association. We have all of us been learning how to take honey and winter our bees, and it is very necessary we should sell out honey. I may say it saved me about a cent a pound on honey last year by getting this report from this committee, and therefore I propose a vote of thanks to the special committee in the hope that we shall keep this committee going in the future as in the past.

Mr. McEVOY: I think it was one of the best things ever got up in this country, because it regulated and steadied the prices, and I hope it will be continued. I second the motion.

Mr. Heise: I think we all appreciate the work of that committee. I remember when it first started in to benefit the Association there was a request on the part of bee-keepers interested that they donate a dollar, and in that way they become a member. I would like to know where or through whom the committee at the present time, or if they do, receive any pay for the work they do in connection with it? Are there still any funds on hand to remunerate them for their services?

Mr. Couse: I think there was a small balance left over from last year, some $7.00. That really has never been transferred over yet to the books of the Association. There is no Honey Exchange now as we understand it; there is simply a committee for the Ontario Bee-Keepers Association.

Mr. Heise: Are they expected to render their services free ?

Mr. Couse: I suppose so.

Mr. Heise: Then I am sure we ought to appreciate it.

The President put the motion to adopt the report and to convey a vote of thanks to the committee, which on a vote having been taken was declared carried.

ELECTION OF OFFICERS.

The election of officers was then proceeded with. The list of officers elected is given on page 3.

Mr. Shaver moved, seconded by Mr. Pettit, that the next annual meeting be held in Toronto.

Mr. Smith moved in amendment, seconded by Mr. Holtermann, that the next annual meeting be held in London in case the Fruit, Flower, and Honey Show be not held in Toronto.

The amendment was lost. The President then put the motion, and on a vote having been taken, it was declared carried, and Toronto selected as the place for holding the next annual meeting.

Mr. Couse moved, seconded by Mr. Shaver, that the representative at the Ottawa Fair be Mr. Darling; at the London Fair, Mr. Miller, and Mr. Grainger at the Toronto Exposition, and that the Directors be recommended to give the usual grants.

Mr. Byer moved an amendment, seconded by Mr. Dickenson, that the representatives as named in the motion be appointed, but that the grants be not given.

The amendment was carried.

FOUL BROOD.

By H. G. Sibbald, Claude.

This is a disease that attacks the larvae, or brood, of bees. It is the most dangerous and destructive of any of the diseases that bees are subject to, and has made such headway that the Ontario Government a number of years ago passed a law appointing an inspector for its suppression. Credit for obtaining this excellent law is due, I believe, to our Ontario Bee-keepers Association.

Since the inception of the law and inspection, the disease has been checked, and is better understood by the mass of expert bee-keepers. Still,

on account of the contagious nature of the disease, and the ignorance of a few in regard to it, the expert is constantly in danger as long as it exists, and bees are in the hands of these few.

It is, therefore, a subject worthy of a place on our programme, and of a full discussion by those who, like myself, have had to their sorrow more experience than is desirable or profitable.

The larvae, or brood, in its early stages is attacked by the foul brood germs, decomposes, decays, and settles in a shapeless mass to the bottom and lower side of the cell. It becomes yellowish-brown in color at first, but later brown or coffee color, and gives off a very offensive odor. If pricked by a pin or tooth-pick, it will be found ropy, and will draw or string out a half inch or so. If the cell has been capped, the capping recedes and presents a sunken appearance. In time the matter dries down, and is of such a sticky, gluey nature that it adheres strongly to the side and bottom of the cell, thus leaving what we call the scale or stain mark of foul brood.

Other forms of dead brood, such as chilled, starved, pickled, and poisoned brood, are different in character, and may be described as follows : The larva dies, but holds its form better; that is it shrinks or dries from the outside, gives off very little odor and is less offensive, does not adhere so tightly to the cell side, and may be removed by a pin or tooth-pick, and when pricked by them will not string out, but appears watery. They will be removed by the bees themselves.

Not so with foul brood, however, for soon after the death of the larva it becomes so foul that I verily believe not a bee can be found that will attempt to clean it out. The cell is apparently avoided, until it becomes dried down, and the odor has become less noticeable. The bees then accept it again, and after polishing it fill it with nectar. The moisture thus applied softens the scale or stain mark and releases the thousands of foul brood germs which float in the honey or nectar—waiting only until fed to larva, thus coming in contact with congenial matter, and causing its death, and their further development and multiplication. Thus it spreads; more and more cells become polluted, the colony dwindles and dies, leaving its honey a prey to robbers who unsuspectingly carry it to their homes, and thereby transmit the disease, until an apiary will be soon destroyed and neighboring apiaries jeopardized.

Every person who keeps bees, whether they have many or few, should study and try and be able to detect the disease in its early stages, and know how it may be carried from one hive to another; which might be briefly summed up in a few words—in any way in which honey or the stain-marked cells can be changed from one hive to another.

Watch your brood; take an interest in it. Whenever you lift out a frame take a look at the brood. If it is all healthy, fat and white looking all is well. If not, apply the tests, and find out what is the matter. If you find the real thing, close the hive and mark it, and consider.

To cure it we must get rid of the combs and honey, for therein is the disease and germs. Go to the colony late in the evening, when the bees will not fly or scatter to other hives. Shake the bees off into the hive, and give a set of frames with feed starters. We have thus gotten rid of the combs as far as this colony is concerned. Not so with the honey. As soon as we disturbed the colony, the bees load themselves with the honey, and we must still get rid of that. They also clean up any that shook out during the manipulation on the floor of the hive, and any that remains on bar combs or were attached to the inside of the hives. This they would store if they had a particle of comb supplied ready. We have only given

feed starters, however, and they must work it out; wax secretion is necessary. Most of the honey is digested and used; but they soon have cells built and may store some of the diseased honey therein. To make a complete cure it is therefore necessary to again shake three days later, the same way as before and supply full sheets.

Melt up or burn up the old combs and the first set of starters and the cure is complete if thoroughly carried out.

This cure can only be applied in the early part of the season, and during a honey flow. If no flow is on the bees must be fed or they would swarm out and perhaps scatter into one or more hives and thus make matters worse.

If the disease is discovered late in the season, and the colony is still strong, leave it until November, take the combs away, and supply honey from a clean colony, in full sealed combs.

The queen is not now laying, and any honey picked up will be consumed first and thus out of the way.

If a yard of bees, or an apiary, is badly diseased when discovered, send for the inspector or someone who has had experience. So that it is unnecessary for me to describe how to go about curing a badly infected yard.

In looking for the disease, hold the frame or comb so that the light may shine into it. The stain marks may be seen by standing with your back to the sun and holding so that the light will shine on and into the lower side of the cell.

In dealing with foul brood the first loss is the least, and while it is well to cure as economically as possible, if we have a large number of colonies and plenty to do and the disease is not discovered until after the honey flow, it would be better perhaps to destroy the combs and kill the bees.

The top story combs, or super combs, if very clean and free from pollen, may be saved by having the diseased colony clean it out before curing. But in this case, again, perhaps the first loss will be the least and it might be better to melt the combs.

Never put a diseased colony in the winter quarters.

Always clip the queen before shaking to cure.

There is another matter that will be of interest to the convention, and we will get some help from Prof. Harrison if I mention it. A year ago I thought of curing by the formalin method, and I went to considerable trouble to get everything in good shape according to the directions as I understood them, and I fumigated a number of combs. I think I turned on the lamp for about two hours, and I made the box pretty strong, because I could hardly take out the combs the next day. But the disease developed after I gave the comb back to the bees, and as I thought perhaps I did not give them enough formalin, I kept the lamp going all night. I not only had the box full, but nearly the building full. I left them for two weeks in that box covered up tight, and when I came to get them out I could hardly bear to reach down into the box, because the formalin was so strong, and I gave the comb again to the bees and the disease developed again. Those combs I tried were combs that had stain marks in the cells, and were taken from just about as bad as I could take in the yard. The top story combs that had honey in them I did not test.

Mr. Deadman: Mr. Sibbald mentioned that after shaking those bees he either burns those combs or melts them. What did you do with the brood in those combs?

Mr. Sibbald : I did not think it would be wise to advise people to try to save that brood. The first loss is the least, and if we have a few colonies diseased it would pay us better to melt and destroy that larvae and lose that much than try to save it. I knew a party that had foul brood, and Mr. McEvoy went to inspect the yard and gave him all the directions, and some other bee-keeper came along that knew far more about it, or thought he did, and he said, "Save your brood; that is a great loss to destroy that larvae." So he set the brood away, and waited until they hatched out, and then shook them. The man took them around to the other side of the barn and piled them up, and the next day it was very cold in the morning, and there wasn't a flow of nectar from the clover, and the bees hunted it up and robbed the whole thing out, and every colony in his yard, I suppose, would be in danger of having the disease then. When he found out what had happened he threw those combs into the threshing engine fire-box right away.

Mr. Hoshal : I do not know as I could give the paper any better myself, if half so good. It is one of those things I do not altogether like to tackle. It was only once in a life time, or twice, at the most, that I have had any experience with foul brood. It is not like other things in bee-keeping, and sometimes I do not like to put my finger down on things with as little experience as that, and against people like Mr. Gemmell, and some others who are at it all the time. I am not going to offer any criticism, but I think I can endorse what Mr. Sibbald says. There are a couple of other things I could draw attention to. When I treated for the disease in my yard, I do not think it had developed to the extent to which the description of to-day would lead you to think that the disease at times develops—ropiness and nastiness and bad smell that we talk of. Some of the colonies had that smell faintly, but that extreme ropiness was lacking to a certain extent. The dead larvae in the bottom of the cell was there all right, and dried up there and kind of salvy, if you can put it that way; but a great deal of the other larvae that was dead was not ropy at all, only watery. We have descriptions, and it is usually called I think in the journals "dead brood." I wish they would change that name and call it foul brood. In connection with that, with a cell of the more advanced type of foul brood, when it comes up to that infectious stage, and the honey from that infected colony is spread throughout the yard, the disease which develops from that colony is the rank type at once.

Prof. Harrison : You have there what we term in bacteriology as virulence. To illustrate, we have some diphtheria epidemics that are very mild and some that are virulent, and very frequently an epidemic may be stopped in the mild type and gradually get more virulent, and we make use of that principle when we want to grow a very virulent, and we make use through the living bodies of certain animals. For instance, if any of you are poultry men, you will know there is an infectious disease of poultry called roup, and we can take the germ, and by transferring it to an absolutely healthy hen or pigeon, we can cause an infection in that bird. It may be a mild one. If we again isolate that germ from the bird, and pass it on to the second bird, and from the second to the third, and then compare the original germ we started with and the germs as taken from the third bird, you will find that from the third bird will be more than three times as virulent. By passing it through the bodies of these birds that germ has acquired virulence. I think it is the same with foul brood. Certain germs may at the start be virulent, and they may be made still more virulent by passage through larvæ. It is a very difficult thing to have every condition

under your control in performing experiments with bee larvæ. I have had these observation hives in my laboratory, and kept them there on the quiet till forced to take them out, and I was told I was going contrary to the foul brood act. I had these legal difficulties, but worse than all, the technical difficulties in working on this question. There are lots of things I would still like to work at with regard to this question of virluence, but it is a very difficult thing to work with this bee larvæ. That is only the beginning of the difficulties; but I think this question of virluence is a very important one.

Whilst I am speaking, I want to say one or two other things with regard to what previous speakers have mentioned. First of all with regard to this formalin. I do not believe there is any specific method for the cure of foul brood. We have Europe using one method, and we have another method used in America, and, as I said this morning, any of these methods will cure foul brood.

With special reference to this formalin treatment, I was talking to Mr. Sibbald, and so far as I can see from his description he certainly carried out the formalin treatment very well. But we know more about formalin gas than we knew a year ago. This formalin vapor or gas is now very largely used by all boards in the country for disinfection of rooms from diphtheria, tuberculosis, and smallpox, and it is considered very efficient Last winter I had to disinfect nearly half a million cubic feet of buildings in connection with smallpox, and I think it has been very efficient. I am convinced of its efficiency for the *bacillus alvei* if it is properly done. In all these cases in the application of formalin vapor there is one point to be remembered, that the gas generated is more potent, that is to say more germ killing, if the temperature is low, and if there is lots of moisture in the air—a low temperature, because it is easy to hold the moisture in the air when the temperature is low rather than when it is high. In all these cases one has to either hang wet sheets in the room or else get moisture in the room by turning on the steam jet, and then allowing it to cool a little. When the air is well saturated with moisture, and if there is bedding or anything of that sort to disinfect, we very frequently sprinkle it with water in order to get more moisture present, then the gas is much more potent and more effective. That is also true of disinfecting any combs you may have. I would strongly advise either the spraying or sprinkling of them. I suppose it would not hurt to dip them in water. Then having generated the gas they should be left in this tight box for at least twelve hours. In disinfecting rooms, or in conducting disinfecting experiments, you should do it sometimes during the day and leave the room shut up till the next morning—from twelve to twenty-four hours. Eighteen to twenty-four hours is the right time to employ in most cases, and I think that should also be done. I am not relying on my own experiments with regard to the efficiency of this gas. I think an efficient number of competent observers, bacteriologists particularly, who have examined the combs affected with foul brood after it has been exposed to formalin vapor, have found no living germs present. The Professor of Pathology in Cincinnati, Prof Cayley in Switzerland, and Prof. Dunbar of the University of Hamburg, Germany, have come to the same conclusion. With these observers widely separated, no collusion between them, their opinions are certainly worthy of credence, and we must therefore believe that this formalin vapor is very effective when properly and intelligently used. I do not want you to go away with the impression that I am an advocate of any one of these treatments. What we are after is knowledge and truth, and if we can find any method which will save you money, or which will

save you labor, that is the method we want, irrespective of who brings it out. It was on that account—the saving of labor and efficiency—that I mentioned that treatment; but if you prefer other methods I believe they are just as good. In Switzerland I had the honor and the pleasure of spending a week or two with Mr. Bertrand, one of the most famous apiculturists in the world, and he uses altogether in his apiaries and recommends in his journal entirely the method of medicated syrups, and he uses formic acid in a substance which is used and helps to preserve; it is the antiseptic which is manufactured by the bees; when they enclose their cells they enclose with it a little drop of formic acid. He uses a large quantity of that, and a number of experiments have shown that this amount of formic acid which he exposes absolutely prevents the growth of foul brood. That is the method by which they are cured, and to a certain extent it prevents the disease. There is the further fact that they have had so much foul brood in Europe that it has evoluted a race of bees which are somewhat immune to this disease. We know that the white race has a considerable immunity to smallpox, whereas the black race on the other hand are extremely susceptible. That immunity is only explained from the fact that the whites have been more exposed to smallpox, and in the course of time they have got a certain amount of immunity to that disease. And it is the same with very many observations, and many other facts like it. In the case of anthrax, which is an extremely deadly disease for sheep and cattle, the Algerian race of sheep are immune to anthrax, and they are the only race that is. Why ? Because they have been exposed to anthrax so often in Algiers that they have gradually got a race in immunity.

I am greatly interested in this question, and am always ready to do any work for the bee-keepers in the examination of specimens that may be sent in. You must remember that we at the College are in a sense your servants, and are always willing to meet you in our work and examine and report if you wish confidentially. No names are ever mentioned if you do not wish it known. We always send a letter, and nothing is ever said about it, and we will send you a report just as soon as it is possible to make a correct diagnosis from the sample you may send in. (Applause.)

The PRESIDENT : We are grateful to Prof. Harrison for the interest he has taken in this subject.

Mr. HURLEY : A year ago this fall I had a very serious attack of foul brood in seventeen colonies. I had some years previous to that met Mr. McEvoy at Toronto Exhibition for perhaps five or ten minutes, and I knew him from a ten minutes' acquaintance. I knew him as an Inspector, and I wrote to him direct, and he came up and inspected my hives, and told me I had a very bad attack of foul brood. It was in every hive. It was discovered in August. I found the bees were standing still; and I didn't know what was the matter with them. I found there was something wrong, so I sent for him. I undertook to treat those bees in the fall. I shook the whole of them last fall, and I brought them through the winter and I winter outside. I kept a few bees as a hobby and as a side issue. My experience is that Mr. McEvoy's system will cure foul brood if it is properly attended to. If you had one diseased cell in a hive, or half a dozen, and if by some means the diseased honey of those cells were not carried to other cells, the disease would not spread. Consequently if the disease gets into a hive it has got there by reason of being taken there. It cannot develop. I do not believe that foul brood develops from dead brood. It must come from living germs somewhere else. If you have a diseased

hive, and none of that disease gets into another hive, you can cure that hive, and you are free of the disease; but if it spreads you have it carried from hive to hive. I treated my bees. They were not strong because they had the disease in the hives all summer. I did not want to lose that brood, and this is the way I handled them; I shook down four colonies. I took the brood of those four colonies, and set them on top of another colony that was diseased which had not been shaken down. I let the combs lie upon that one hive—the four supers—long enough to let the brood hatch out. The under hive being strong enough in bees to resist the robbers, permitted me to allow the brood to hatch, and I saved the brood in the four hives piled on top. After they had stood long enough to be hatched out, I destroyed those combs. Then I shook the bottom hives and destroyed it entirely, brood and all. Consequently by the destruction of the entire brood of one hive I saved the brood of four hives, and in a way that prevented robbing.

Mr. Sibbald : Any man that had a diseased yard like you should send for the Inspector; but if you only have two or three colonies I would not bother saving the brood.

Mr. Hurley : With Mr. McEvoy's advice, I carefully looked into the matter, and gave them good attention, and I must say that had I not followed his advice as closely as I did I would have lost the entire lot of bees because it was in every hive. I think anybody who follows Mr. McEvoy's system will cure and get rid of it entirely. (Applause.)

Mr. Hoshal : There is a phase of this subject that has not come out at all, and I have often wondered why it has not. I have often wondered why it is we desire to keep this thing covered up so thoroughly as we have. I had the disease a while ago, and I would not like to be considered a criminal because I had it. It is no disgrace.

THE PAST WINTER'S LOSSES, AND THE DEDUCTIONS TO BE DRAWN THEREFROM.

By R. F. Holtermann, Brantford.

In the *Canadian Bee Journal* for September appears a letter from the veteran statistician in the Department of Agriculture for the Dominion, Mr. George Johnson, which reads in part as follows:

"We certainly had a severe loss in our bees here. I lost all I had in Nova Scotia. East of the Ottawa I think more than 75 per cent. of the colonies were lost. That would mean 53,000 or 54,000 colonies dead, leaving not more than 17,000 that came through the winter, while 50 per cent. loss west of the Ottawa would leave the stock of bees not more than 60,000, giving in all 77,000 where the census of 1901 gave a total of 190,000. This is a terrible death rate, and at $2 a colony, the loss through winter's action would not be far from a quarter of a million dollars for bees alone, to say nothing of the loss of honey thrugh not having the bees. If the whole 77,000 give off two swarms this season, we would still be 69,000 to 70,000 colonies short of what we were in 1900."

The above statement, coming from such a source, has upon it the stamp of authority. I had previously placed the percentage of loss at 70 per cent. which in my estimation is not too high.

In estimating the financial loss, we must remember that a great many of the combs and hives in which the bees perished have become useless, the combs having been destroyed by that enemy (and friend) of the bee-keeper, the moth. The hives sometimes find a market at a loss, but quite often the moth renders them partially valueless, carelessness and time completing the work of destruction. Three or four dollars per colony would be a very conservative estimate of the loss in bees and hives. Again the majority of the colonies that survived were in too weak a condition to take proper advantage of the honey flow when it came, resulting in the loss through lack of workers of a large percentage of nectar which might have been harvested.

Looking at it from a national standpoint, there would be a financial loss to the country of at least half a million dollars, and a blow to the industry from which it will take years to recover. So much for the fact. Next in my address I am called upon to make deductions.

Webster's dictionary gives as the meaning of deduction "that which is deducted from premises by a process of reasoning; an inference; a conclusion." Let me confess that this is a line of work I like, however feeble my powers may be to perform. Looking at bee-keeping as a whole, I see in many of the articles which are written for bee and agricultural papers in general, in the items in the general press, even in the addresses at conventions, and in the discussions which take place, a great many statements as to what the exponent does, or informing others what they should do, but painfully little as to how he should act under given conditions and showing why it should be done in that way. There are laws in physics, in chemistry, in nature, which can be explained and made intelligible to even a simple-minded individual. Without the above, in connection with instruction, there can be no intelligent action and no solid intelligent progress.

Conditions studied are of prime importance and the foundation of successful action, and such a course would lead to greater harmony in our discussions, greater intelligence and greater progress in the bee-keeping industry, and vastly benefit us individually and collectively.

To learn to truly think, and not merely imitate or ape, would not only lessen the per cent. of winter loss, but would revolutionize many of our lives for time, yes, for eternity.

May we, from last winter's experience, come to the conclusion that Canada is not suited to this, the aesthetic branch of agriculture, or may we even say that it is not a safe branch of agriculture in Canada? Far be the thought from us. As to quality, wherever shown the quality of Canadian honey has proved itself to be unsurpassed. Judges, not Canadian, even foreigners, have again and again pronounced in favor of our honey. British experts, honest men, who had a love for and a fostering interest in the development of bee-keeping in their own land, have told me and others that our Canadian honey leaves nothing to be desired. So far as the winter is concerned, we have among us those who winter bees with as great certainty and success as the shepherd and the herdsman winter his flocks and herds. In this respect what one can do another may. Shall we then say that the past winter was a winter in which bees could not be wintered with success? We must admit it was the most disastrous for many years. To my recollection we have had none like it for twenty-three years, but both in repositories and outside bees were during the time under discussion wintered with success. Such a line of argument must then fall to the ground.

Shall we then say that a great many do not know the conditions under which bees can be wintered with reasonable safety? If we can judge from what we see and hear, we may surely make this assertion with safety. There are many who do not know, who cannot know, the conditions under which

bees can with reasonable safety be wintered. They have begun bee-keeping through the acquisition of a stray swarm, or the microbe of bee fever has taken root in their mind through the success of one who has devoted his time to the work. They see the return but not the labor. No literature upon the subject is sought; they have no proverbial "long felt want" or short either, for knowledge. An old hive is bought, perhaps, with foul brood germs; this neglected hive may be a breeding place for this disease, and the moth. During their short career as bee-keepers, if product they have, it is oftener than not taken in such a shape that when sold it depresses the market. They sell at a sacrifice. This class of bee-keepers is a menace to apicultural society, and cannot be too strongly discouraged. With the beginner who sees in it a business and desires to engage in it in a business-like way, we as individuals and especially as an association having a Government grant, entrusted with public money, should have every sympathy.

Let us state the truth, that bee-keeping is an occupation full of problems, which multiply in our view as we gain experience and rise in it.

The occupation we know nothing of is the one which appears simple and easy to understand. Let us take home the wholesome lesson in spiritual as well as temporal life, imparted when man fell, "In the sweat of thy face shalt thou eat bread"; to produce good, evils must be resisted and difficulties overcome. We can easily recognize this class who do not know the conditions under which bees can be wintered with reasonable safety. There is however under this head another class, perhaps not so numerous, but more dangerous, who can do an immeasurable amount of harm in influencing the less experienced and less thoughtful bee-keeper. I refer to the blind leaders of the blind. It is a well known joke among the veterans that when a bee-keeper has a little experience he knows more than he ever will again; he can tell you all about it; this he realizes he never can at a later stage of the game. I am fairly familiar with the various branches of agriculture, having been brought up on the farm, worked on a farm, taken a course in the Ontario Agricultural College, and kept in touch with the developments of modern agriculture since. Seeing from that standpoint, it seems to me that no class of agriculture is handicapped as bee-keeping is with such inefficient instructors and experimenters in one way and another. Anything and anyone is good enough to take the bee department, when in other lines it would not be offered or tolerated. These agencies, be they Government or private, by their action endorse the thought that it requires no training to keep bees, and these agencies help to swell the ranks of those who increase the percentage of winter loss, and who are a menace and a detriment to the agriculture of a country.

Our world's Governments, if we except some countries in Europe, our public institutions, our press, in the development of our various branches of agriculture, remind me largely of the unjust father who had a large family to provide for, and found it impossible to give every child a first-class education and position, so he sent some to school, college and university; they became noted men; others however instead of educating them at school and university, he sets at breaking stones on the road; the children became marked contrasts; the former in time looked down with scorn upon the latter: the stone-breaker, as the eminent man's carriage drove by, justly despised and perhaps envied his rich brother because he had been elevated by having given to him what was justly the stone-breaker's share, and the head of the family was judged for his partial action, and condemned by every just and thoughtful person. Some branches of agriculture are rolling by in their

carriages, whilst apiculture and apicultural markets are still in the stone-breaking stage.

Then we see those who know how to prepare their bees, but are too busy, too careless, and too indifferent to put that knowledge into practice. We know of many who undertake too much, who have too many irons in the fire; the return they get for the capital they have invested is a loss, a reputation for lack of thoroughness, to say nothing of added worry and annoyance. The person who is constitutionally a little behind should never keep bees. The "too many irons in the fire" man never reaches the degree of success where that success gives him a stimulus and pleasure of which the ordinary man knows nothing. We are in the days of the specialist; no man is competent to lead in a variety of agricultural subjects.

My last deduction is that last winter's experience, and years of experience, teach us that bee-keeping is a branch of agriculture which punishes sooner or later the careless inexperienced bee-keeper, and the person who cannot give it due attention. And it rewards liberally the careful energetic, thrifty and studious performer; in other words, it is worthy the attention of our brightest minds and dispositions. This last deduction is sound, and the more we blazon abroad this fact, the better for bee-keeping, and the better for the country. The more successful bee-keepers we have, the less there will be of the dangerous elements. Bee-keeping is an occupation peculiarly dangerous to one of slothful or improvident disposition. Action has to be taken when present circumstances would not spur us to that action. To prepare for a honey flow weeks, yes, months, before, when cold weather would rather draw us to the fireside; to prepare for a rush of honey when scarcely a bee is stirring in the apiary requires energy and foresight. The life history of the bee, a knowledge of the best implements, mechanical training, botany, chemistry, entomology, physics, and meteorolgy, the nature of soils, physical strength, mental endowments, and business acumen possessed and applied, all will be rewarded when one engages in bee-keeping. This is more or less true of all branches of agriculture. In choosing a life profession the parent and child often choose a calling where the means financial, mental and otherwise, can give no hope of being in anything but the vanguard of the profession. Desire in this should be governed by solid sense. The careless and thoughtless and the poorly equipped and shiftless, better not follow agriculture as a business, but select something which does not require so wide a range of information and powers. It would be better for him to become a lawyer, a doctor, a merchant, a politician or the like. Strictly speaking, my subject ends here, and yet I venture an addition to what has been said, to say a few words upon the additional prevention of these winter losses. Seeing that every colony has a fertile queen, of the best wintering strain, and thirty pounds of winter stores, would reduce the percentage of winter losses very much. The colder it is the more compactly bees cluster. If stores do not reach the cluster they may not be able to break the cluster to reach the stores, and starve. This is frequently the case during prolonged cold spells, and only a moderate amount of stores in the hive.

The moisture given off by the bees should be expelled from the hive. After allowing in outside wintering sufficient packing to protect from cold, there are two methods advocated. By means of one, the fresh air is brought in at the entrace of the hive, and the air laden with moisture and carbonic acid gas is carried off at the same opening

The other method is to bring in the pure air at the entrance and carry the foul air by the pressure from the fresh air entering the hive, and the

natural tendency for the warmed air to rise, by these means to carry the exhausted air through the packing above.

Mr. Arthur C. Miller, in the "Review," lays down in no uncertain tones that the entrance is the proper opening for fresh air, and also the outlet for foul. In a stove we have the place where the fresh air enters, as in the hive we have the entrance to the hive. In the wood and fire we have combustion and oxidation, as with the bees and honey we have combustion and oxidation. When the fresh air entrance becomes the natural outlet for the smoke and carbonic acid gas, then the entrance to the hive will be the natural outlet for the exhausted air of the hive.

In the common entrance and outlet we have what is known in science as a friction of air currents, the bees wasting energy in expelling it, as they do in forcing the warmed atmosphere down. Another objection is that more or less of the exhausted, impure air, must be drawn back into the hive by what is known as diffusion of gases. But what makes this advice so dangerous is colder climates, and I have no doubt that this advice has led to the loss of many a colony of bees during the past winter, is that as the moisture-laden air returns to the colder part of the hive, it condenses and freezes, the distance inside the hive the moisture condenses depending upon the cluster, the size of the hive, the size of the entrance, and the efficiency of the packing. Such conditions were common, and the cold and damp atmosphere with the frozen entrance destroyed the bees. Let me say that cold alone rarely kills bees. I saw in Norfolk during the latter part of March, bees alive and apparently in fair condition that had been standing out all winter in hives, with upper stories, and a 7-8 inch hive cover, the combs and the bees in the lower chamber of the hive did not even have a thin cloth above them, the nearest protection was the warped 7-8 board at the top of the upper story. Cold was there surely in abundance, but no moisture lingered in the atmosphere about the bees.

The right method is the chimney principle; the foul air carried away at the top, packing enough to keep the bees warm, but not so abundant or so compact that the foul air could not rise through the packing on the hive. Here, where the moisture leaves it, the hive is warm, the heat of the cluster and the air rising and no condensation takes place until the moisture reaches the top of the packing, or until it strikes the under side of the outside case cover. Here it can be disposed of at favorable periods by allowing moderate ventilation under this cover. The common opening ventilator is wrong in principle in any climate, but particularly injurious and dangerous in a cold climate. I trust I have made this clear.

In inside wintering there have been heavy losses, chiefly in repositories which could not maintain an even and sufficiently high temperature. The moisture above mentioned has also not been carried off, this combination with low temperature resulting in heavy losses.

Our own repository, which will hold 1,000 colonies, and has this winter 700 in it, is specially built with the object of securing a uniform but sufficiently high temperature. The fresh and the foul air is not brought in at the same entrance, but for convenience and economy of space the back of the hive is raised two inches on the stand and 3-8 inches from the bottom board. Through this rear opening the foul air escapes.

In conclusion, let me say, not only will these periodic attacks occur to bee-keeping, but the cheapest production and the best goods will not be secured, neither will we have our markets developed to their best until we secure that recognition for bee-keeping and that aid in the development of the industry which has been given to other branches of agriculture. We

may bluster, we may make statements that bee-keeping does not require such aid, but it cannot be shown by a line of logic that in this respect the principles which govern its development are different to other branches of agriculture. Dairymen would not go back to the days before it had no fostering care. Fruit growers value the help they are getting; the poultry industry has been put upon a more profitable footing; and so might bee-keeping have a new era of prosperity under proper guidance.

Mr. Darling : I have listened attentively to the paper. I think it has been treated quite exhaustively, and yet it is my opinion there has been one point that has been entirely over-looked. I do not think I ever saw a winter since I had anything to do with bees that the losses were so heavy as last year, but outside what has been stated in that paper altogether I think there was one great cause, and that is the dearth of nectar the season before. I will give you my reason for saying that. I am one of those who lost very heavily. I had about one hundred and forty colonies a year ago last September, and this summer I went into clover with sixteen. I attribute the greatest part of my loss to two things, one that I had a little too much to attend to last year, and the other that our queens stopped breeding when the nectar stopped flowing, and we went into winter quarers with bees too old to pull through. The most of those colonies that dwindled has left brood in all stages in the hive but only a small quantity of it, and there were not enough young bees left behind to take care of themselves, to say nothing of the eggs and larvae that was left. There was a man who had not so many colonies as I have, and who lived eight or nine miles from where I was; he had about eighty and he doubled down to sixty-six. He fed 600 pounds of sugar, and put his brood away, and he only lost nine out of the sixty-six, and he brought the others out. I was out in May, and he had them in fine condition. The fall feeding overcame to a certain extent the difficulties that had been caused by the dearth of honey in the summer, but a short sharp feeding will not produce it. I do not know that he extended his feeding over a length of time, but in our locality a few miles makes a great difference in the honey flow. I did not get fifty pounds from over one hundred colonies. He took a small quantity but not much, and was wise enough not to rob his bees.

Mr. Hall : Allow me to state my experience, as it is somewhat different from Mr. Darling's. We have three apiaries. The home apiary shut down last year about the 20th July. They did not gather their food, but they kept shrinking until the fruit bloom this spring. Out of 110 colonies of bees at home we lost two in the home yard, in the cellar, with abundance of honey. The reason of that loss is they had no mother. The others were old bees which hatched somewhere about the middle of July. Those old bees that did not breed and consume their honey, came into the honey harvest in grand condition. Some few of them had foolishly started breeding in the cellar, and came out very strong, and had not sufficient honey to carry them through. I supplied their wants with a few pounds of syrup fed at the entrance. At another apiary we have a few miles from home we winter outside. Mr. McEvoy advises us to shake them off unto small combs. His are small. Mine are 10-14 inches inside measure. I do not know how many we wintered of those. They gathered a large lot of honey last year. The forty colonies gathered 4,800 lbs. of white honey, and increased to 70 and they were all of them heavy for the winter. Some of them we shook off unto combs solidly capped with honey. I lost twenty of those colonies from starvation. I was sick last spring, and I took my wife and assistant out, and I thought I could stand by and give them a little help

in the work, but I could not. I had to go to work and make myself sick again. Out of those twenty that perished, there was only one of those on the four combs that died, and that one was queenless, and could not have lived if it had fifty combs. The secret of it was they could not breed in the winter. They did not exhaust themselves the same as your did, and some of mine, in breeding very hard in the spring. You know as well as I do the fellow with the grey hair very often gets that way with the big family he has to support. He raises them, and it uses up his vitality, he becomes prematurely old, and he leaves them behind. That was the way with your bees, they commenced raising babies, and those babies require all their attention, and made them get old sooner than they would otherwise have got, and therefore they died from exhaustion before the babies could come on to take their places. I rather encourage your idea of having young bees. We have an apiary nine miles east in the buckwheat region, and they went into winter quarters with fifty pounds without the hive, most of them, and they did not come out any better than the home bees practically; but they had the wherewithal to go to the bank and draw any amount of money to buy their feed and feed their family, and they came into the honey harvest booming. They gave us an abundance of honey, and they are in grand shape for wintering this season. To the north the bees have given us no surplus this year, and we have had to take honey from that east apiary, fourteen miles, to the north apiary to get those bees ready for winter.

Mr. CHADWICK : In reference to ventilation on the tops of the hives, I winter my bees in the cellar. My cellar runs about forty-five degrees almost constantly from the time they go in till they come out. I have been using cushions on top. Last fall I had more bees to put in that I had cushions for, and I used the honey-board. Invariably my bees came out with the honey-board equally as good as those with the cushions with no ventilation whatever on top. The front of my hive is something the same as the Langstroth, only it has seven-eighths of an inch in front left open for ventilation. Would it not be advisable for me to take off the honey-board and bore a hole in the top of it, and put a little wire cloth over it ? I have not put my bees is winter quarters yet. Furthermore I put in 76 colonies last winter, I think it was on the 20th November, and they were in the cellar nearly five months and a half, and I brought out seventy-five.

Mr. HALL : And you are not satisfied with that ?

Mr. CHADWICK : Yes.

Mr. HALL : Keep on, man. Do not ask advice from these fellows that do not succeed.

Mr. CHADWICK : Of course I did my best. I have 100 hives this year to put away. I have never been a wonderful hand to have a great many swarms of bees through some cause. I have succeeded in getting about twenty-five colonies more than last year. There is one thing I do do with a full colony, I shake them out and use the honey to build up others if honey is a little scarce in the fall of the year. I got that plan from Mr. Wells. I would like to ask as to the advisability of boring a small hole in the top of the honey-board.

Mr. HALL : If you are as successful as you say why not be satisfied ? I have over 200 stock of bees, and there is not a cloth on one of them; there has not been for six years. I have 192 colonies, I lost two, and I am satisfied with that.

Mr. CHADWICK : For the summer season I have a cap that goes over the honey-board with a galvanized top in a frame work, and it is possibly two inches above the honey-board. I lay that off.

Mr. Hurley : Last fall after I had treated my bees they were weak. They were all fed with sugar, and they had no honey only what I fed them, I put them in dry goods boxes; I left the honey-board on top; I used no cloth; I covered them with shavings about six to eight inches, and they came out in the spring without a bit of mildew and as dry as could be.

Mr. Sibbald : My idea of ventilation in the hive is something like this, if our cellar or our packing case will keep the temperature high enough, the bees will throw off moisture at the entrance all right, but if the temperature gets too low either in the cellar or outside we ought to have some upward ventilation so that it will come off that way and absorb, or put something over the top to take the moisture. You will not find any trouble with a good cellar and a good top board, nor do I think you will find any trouble outside. The heat of that colony at the entrance will melt away everything; not even snow will stay there. An hour or so after a snow storm the front will be open. The weaker the colony, and the lower the temperature, the more danger there will be.

Mr. Heise : I think Mr. Sibbald has struck the vital point. I believe the cause of my loss was from that very standpoint. The temperature got very low, and it continued there for weeks and weeks at a time, and there was not sufficient heat. The bees could not generate sufficient heat to dispel the moisture, and the result was their vitality was so reduced that while they came out clean and fine in the spring yet all of a sudden they went to pieces.

Mr. McEvoy : Did you winter these outside ?

Mr. Heise : Yes.

Mr. McEvoy : Was that top fast on the brood chamber ?

Mr. Heise : It was simply sitting on the rabbet on top of the rim. I use a hive for wintering outside without any packing whatever at the bottom or sides, but I have abundance of leaves on top; and while I have wintered successfully in those hives for a number of years I am ready to admit a winter like last winter that hive is not sufficient. I have yet in my yard I think possibly about seven or eight sawdust packed hives that came through without a loss while in the others I sustained a loss of about forty per cent.

Mr. Purvis : Do damp cellars have anything to do with loss of bees over that of dry cellars ?

Mr. Holtermann : The more moisture there is in the atmosphere the greater necessity of having higher temperature. The next thing is a great many people make a mistake about what they call a moist cellar. There may be moisture in parts of the cellar and yet the atmosphere not so very moist. One danger in connection with low temperature is condensation of moisture on the walls. Instead of passing off through a proper channel of ventilation, it stays there and the atmosphere stays moist.

Last year we tried some stocks leaving the cover on. The cover is five-eighths inch packing-felt, and three-eighths inch wood and a galvanized top. We set them up at the back so that they had ventilation, too. Those stocks seemed to winter with perfect success in the cellar, and I have almost decided to put all in the cellar this winter with just a cover on.

Mr. Purvis : And give them no ventilation at all ?

Mr. Holterman : Not from the top.

Mr. Chadwick : My ventilation and air to the bees is all in front. I had packed them five deep in the cellar. I have a foundation five inches from the cellar bottom, and I put the first five there with the next one on top of the honey-board and packed them up five deep. I have a room about

twelve by sixteen feet, that I expect this year to put one hundred hives in. Last year I had a chain pump log with a hole of about an inch and a half. I had that extending from the cellar through the window and outdoors; all round it at the window was thoroughly packed in with sand and loam. The day before Easter Monday, I got a three-inch pipe to go through there. I thought probably I would require more air in the cellar. I govern that from the outside: if it is extremely cold I shut it up tight from the outside. Would a three-inch bore be sufficient in ventilating a cellar out through the window that way?

Mr. Holtermann: Our cellar is specially built, and there are no openings in it as there are generally when a wall is built. The wall is built tight, and the ventilator extends about one hundred feet, eight feet under ground. It is brought under the cellar floor into a central chamber, in which is a stove for heating the fresh air, if necessary before it enters the cellar. If you have taken your bees out of winter quarters without signs of breeding, then I would say never mind what anybody else does, go on and do it in that way.

Mr. Pettit: Mr. Holtermann and I tried the same cover experiment, without consulting each other. My usual method has been to have a chaff cushion on top of the hive. I use white duck for a cloth. I turn the edge of this back a few inches and put common cotton over that space. That allows upward ventilation through the chaff cushion. All the hives have that, and they are piled up in the same way Mr. Chadwick mentioned. Besides this, they are pried up from the back off the bottom board three-eighths of an inch, which gives free ventilation at the bottom, and this small amount of upper ventilation through the cushion. Last winter I tried several hives with the cover clamped on tight. The cover was three-eighths of an inch on board and half an inch on felt paper and painted cotton over the top, which I consider made a warm and practically air tight cover, so that the top of the hive was practically air tight, but it had the bottom ventilation all round. The hives I put in that way came out fully as well as if not a little better than those that had the upward ventilation. The temperature in the cellar ran from 38 in extremely cold weather to 42.

Mr. Hall: Our temperature in the cellar runs from 44 to 48 degrees, and I winter them without top at all and it does not seem to make any difference.

Mr. Darling: I have been in Mr. Hall's cellar, and I think he has one of the best ventilated cellars I ever saw. I do not think there is very much variation of temperature. I used to use sawdust cushions, and I was very particular to get very fine sawdust. I used common factory cotton to make the tick of, and I was very particular not to have any propolis sheets, on and I was careful in other ways. I found if I laid a piece of lath on top of that cushion there was a wet streak about the width and length of that lath all the way on the cushion. About three years ago I was not able to put the bees away myself, and I got a pretty strong man to carry them in, and as there was a storm likely to come on, they went in in a hurry. I thought I would get them straightened up afterwards. We got about half of the hives put away, and the other half were carried in, and I intended to put them on the racks afterwards which I have up from the floor nearly the height of these chair bottoms so that they will be out of the way of the bad air. The hives were piled up one on top of the other three or four high. It so happened that it was along in the winter before I was able to touch them. I had examined them three or four times without disturbing them at all, and they were getting along so nicely I thought I would let

them alone. I left them there till spring, and took them out, and some of the best colonies that went out of that cellar went out of those piles that had been set right on the floor, and it was not the top ones, either. There is not a cushion on my bees to-day. I put them away last week. I have left the propolis sheets on some of them; I have put a nice seven-eighths inch cover-lid on top; on others I have just picked up any stray piece of board I had and laid it on until every hive has a board on top of that sheet. Those hives that came through successfully last winter were covered up in the same way. Unless something changes me, I do not think I will ever make another cushion.

REPORT OF TRANSPORTATION COMMITTEE.

On behalf of the committee appointed to procure better railway rates Mr. Couse stated that the committee had not done anything.

Mr. CRAIG: Is the present transportation rate satisfactory?

Mr. SIBBALD: I do not think so. Freight rates are very high shipping west. I believe the Grand Trunk will not accept comb-honey as freight. There are quite a number of things that we might get better terms on if we were represented to the railway. The secretary of the Fruit Growers' Association said they obtained very much better rates and better accommodation from the railways by their representative that was sent there this year. That is a valuable committee, and if we had a Committee last year that did not work we had better try to get a better one.

Mr. HOLTERMANN: This matter of the reduction of freight rates is something I am very anxious to see go through. Even at the risk of being misunderstood, I would like to get on that committtee, and I would like to see Mr. Couse and Mr. Sibbald on it.

On motion of Mr. CRAIG, seconded by Mr. ROBERTS, Messrs. Couse, Sibbald and Holtermann were appointed as the committee.

On motion of Mr. HOLTERMANN, seconded by Mr. EMIGH, Messrs. Sibbald, Couse and Craig were appointed as a committee on money exchange.

Mr. BYER brought up the question of the Honey Show, and the question of display versus quality was discussed by Messrs. Holtermann, Sparling, McEvoy, Chrysler, Fixter, and others, and the decision arrived at was that the smallest exhibitor should receive the same consideration as the large exhibitor, and that display should not alone be considered, but that unless the quality justified it the display should not count, no matter how good it was, that quality should rule in every case.

SANFOIN.

By JOHN FIXTER, CENTRAL EXPERIMENTAL FARM, OTTAWA.

This clover has again attracted much attention on the Central Experimental Farm, both as a fodder plant and also as a honey producer. Sanfoin sown in May, 1903, came in bloom on August 15th of the same year, was cut for hay on August 28th, and gave a yield per acre of one ton 760 pounds of cured hay. The autumn growth was allowed to remain on the land as a protection to the roots for the winter. It is not advisable to cut or pasture any clover too close in the autumn, as better results are obtained by leaving a good cover as a protection. The growth of the summer of 1904 was strong and even, average height 23 inches; came in bloom

May 31st, and lasted up till the 20th of June, when the plot was cut for hay. The yield of this first cutting was 2 tons, 840 pounds of cured hay per acre. The second bloom was on July 30th, and lasted until August 15th, when it was again cut for hay, giving 1 ton, 837 pounds of cured hay, or a total yield for the year of 3 tons, 1,677 pounds per acre.

This clover is really a grand thing for the bee-keepers, and I feel safe in saying every bee-keeper ought to try some of it to see if it will succeed in his district. I have yet to see a plant that the bees crowd on and stick to from morning till night anywhere in comparison with this clover. The seed, as I said last year, was hard to procure; we had trouble in getting it to germinate, but I think as we get more of it in the country that difficulty will be overcome. I would certainly advise going into it. I sent a few packages out to people interested last year, and some of the reports were favorable. I will not say everybody will succeed, but those who can succeed in getting it will find a very great benefit in it.

Mr. WOOD: How does it stand the winter?

Mr. FIXTER: Very well. We have had it six and seven years, but that is too long to let any clover remain in the ground. Far better plow it up when you have taken off two or three crops. All clovers are known to be wonderful fertilizers; it will pay for the extra seeding to plow it up.

Mr. MCEVOY: I think it is one of the greatest clovers ever introduced in this country for bees, because it comes into bloom at a period between fruit bloom and clover. It fills a gap. It comes in at the right time, and teems with honey, because the bumble bee, the honey bee, and the wasp are seen upon it, and it seems as though there has been an invitation given to every bee. Some of them are on the same head. If we could only get enough of that kind at that period it would be very important, because the larvæ that are fed at that period are the life blood that is going to gather in the honey in the harvest. There is nothing that I ever saw that takes the place of sanfoin. Does it pay for hay?

Mr. FIXTER: Certainly it will.

Mr. BYER: What dates have you that that clover bloomed from the time it was sown?

Mr. FIXTER: August 15th— that is the first year.

Mr. BYER: I sowed the sample you sent me on the second day of May. It made a rapid growth, and never blossomed till it came on to summer. It is a difference of locality.

Mr. SMITH: When I was in England I had an opportunity of seeing some sanfoin honey, and the sample I saw was one of the finest, both for color, body and flavor.

Mr. HOLTERMANN: I do not know whether some of you saw recently an article on that in one of the United States Bee Journals. It did not speak very favorably of it in some localities. Was it a section where the ground might be bare through the winter?

Mr. BYER: Yes, a section where no snow has stayed on the ground.

Mr. HOLTERMANN: I think we are indebted to the Experimental Farm at Ottawa for what it is doing.

Mr. FIXTER: I saw the article in *Gleanings*. Speaking of sanfoin, I do not say it will do in every district—no clover will—but try it on a small scale first. Do not buy two or three bushels of seed and then be disappointed; but try a few pounds, and if you see it is going to succeed go in for it extensively. Any man who can grow alfalfa or lucerne successfully can grow sanfoin. It may be that it is hard to get out of the land. It will not yield anything like alfalfa. The quality of the hay is first-class, choice, cannot be better.

Mr. McEvoy: Do you mean it will not yield as much hay?

Mr. Fixter: It will not yield as much as alfalfa or lucerne, but it is such a honey producer I think the quality must be there. Last year we sowed an acre of it on the Experimental Farm, and I hope to give you fuller details of a larger plot. We should see an increase in the weight of our hives from that sized plot, and, as Mr. McEvoy said, it comes in before the white clover, and it lasts so long. This plant starts to bloom from the bottom of the head, and it keeps on blooming till gets to the tip. By the time it gets to the tip it is done at the bottom, and the seeds are beginning to come off. Then again, it comes in after the white clover is done in August. Every season it will not be the same. It was not as good last year with us as it was the year before. The seed usually costs about fifteen cents a pound, and any kind of soil will grow it where the water is not too near the surface, but it wants to be in fairly good condition.

The first thing is to test the germinating power of your seed, and, as sanfoin seed is the largest of the clover seeds, you require to sow about thirty pounds of the best seed. There is so much of this waste taken up with the hull.

EXPERIMENTS IN APICULTURE.

By John Fixter, Central Experimental Farm, Ottawa.

The following experiments in bee-keeping were described by Mr. Fixter:

Insulating Hives for Outside Wintering.

Two colonies of equal strength with good laying queens in Langstroth hives were taken for this experiment. The hives were insulated against the winter cold by air cushions in the following manner. Slate 1 inch thick were nailed at intervals all around the hive, on these was tacked one layer of thick brown building paper, and then a layer of oiled paper, which increases durability and also keeps out vermin. In order to provide extra protection to the hive, a box six inches wider and six inches longer was removed and replaced with a chaff cushion 3 inches thick, the latter placed placed over this with an opening out at the entrance, 1 inch by 2 inches, all other openings being closed. The wooden covers of each hive were removed and replaced with a chaff cushion three inches thick, the latter placed on the propolis quilt, and lapping over the sides of the hive; two layers of paper were then placed on the top of the cushion and a second cushion added, with the top of the outside box over it. The bees were put into winter quarters on November 18th. No sound could be heard from these colonies all winter, up to March 10th, when a slight hum was perceptible. On March 20th the first bees made their appearance; there were many dead bees at the entrance of the hives. On March 21st, the day being bright and warm, the outside cases were removed, leaving the paper and one chaff cushion on during the cold spring. Upon examination, one colony was found to be in fairly good condition, the other very poor, with many dead bees on the bottom board. A few days afterwards the latter was found to be deserted. The frames in both cases were all dry and clean, and had abundance of honey to carry them through from November to the clover bloom. Weight, when put into winter quarters, 53½ lbs. each; in spring, 37¼ pounds each, or a loss of 16¼ pounds.

A second experiment was tried similar to the above. Four hives were taken for this test, instead of having them single. The four were placed in a large packing case, the case being one foot larger each way than the hives, the hives being placed six inches apart in the case, with six inches of cut straw on the bottom of the case for the hives to rest upon. The six inch space between the hives was packed with cut straw, also the one-foot space all around and on top of the hives. The entrance of two of the hives faced east, that of the other two hives faced west. The entrance to the hives was kept clear of snow all winter to ensure free ventilation. No sound could be heard from these colonies all winter. On March 22 the bees made their appearance, when many were flying briskly going out and returning. From March 22 to April 22 the bees had but one good flight. On April 22 they were then examined. Very few dead bees were found on the bottom boards; the combs were dry and clean, and no sign of dysentery. They were then removed from the packing case and placed on their summer stands. The average weight of the hives when the bees were put into winter quarters was 62½ lbs.; when put on their summer stands, 49¼ lbs., showing that each hive had lost 13 pounds 4 ounces. The weather at this date being bright and warm, the bees built up rapidly, and were in excellent condition for the honey flow.

This experiment was tried in a well sheltered corner where no cold winds could get at the hives.

Damp Cellars for Wintering Bees.

Many letters are received enquiring whether a damp cellar is a fit place to winter bees in. An experiment was conducted during the winter of 1902-3 with three colonies of bees. During the winter of 1903-4 it was thought best to try this experiment with six colonies in a similar manner as in the previous experiment. Seven pails of water were arranged in such a way that the colonies of bees would rest on the edges of the pails, allowing the full surface of the water to be exposed.

Six colonies were selected for this experiment, all of about equal strength, and all in Langstroth hives, weighing on an average 57½ pounds each. The wooden covers were removed from the hives and replaced with propolis quilts; the bottom of each hive was loosened from the brood chamber, and a block two inches square was placed at each corner between the bottom board and the brood chamber, ensuring free ventilation from the bottom of each hive. The cellar was kept at a very even temperature of 44 to 48 degrees. The bees could be seen hanging below the frames in a quiet cluster all winter. They were all examined once each week, and at no time did there appear to be any sign of uneasiness from the extra moisture. There were scarcely any dead bees on any of the bottom boards nor any sign of dysentery, and all came out in excellent condition. The colonies were set out on their summer stands on March 20th, and the day being fine and warm, all began flying at once. The average weight of the six colonies when set on their summer stands was 44¼ pounds each. During the days intervening from March 20th to April 5th the weather was cool, and no flying took place up to the later date. At this period there was but one good bright, warm day (April 5th) and the bees had to content themselves to remain indoors until April 22nd, when the weather turned quite warm. The bees then built up very rapidly, and were in excellent condition for the honey flow.

A second experiment was tried adding more moisture. Six colonies were selected for this experiment, all of about equal strength, and all in Langstroth hives, weighing on an average 58 3-4 pounds each. The wooden covers were removed from the hives and the sealed propolis quilts left on, the bottom board of each hive being loosened from the brood chamber, and a block two inches square placed at each corner between the bottom board and the brood chamber, ensuring free ventilation from the bottom of each hive. Seven pails of water were then put on the floor in such a way that the six hives were resting on the edges of the pails, allowing the full surface of the water to be exposed. In addition to the pails of water six inches of sand was spread on the cellar floor between the pails and covering six inches of the floor outside of the pails. There was also a large cotton sheet spread over the six hives. The sand and sheet were kept thoroughly saturated with water once each week during the winter. The cellar was kept at a very even temperature of 44 to 48 degrees, and was well ventilated during the whole winter. The bees, in this test, were more uneasy than in the experiment first described where no sand or cotton covering was used, having to keep up fanning for ventilation. There were also considerable more dead bees on the bottom boards, and several had drops of water along the entrance, but there was no sign of dysentery. On March 20th, the day being fine, the colonies were removed to the bee yard, where all began flying at once. The average weight of the six colonies when set on their summer stands was 44¼ pounds each. From March 20th to April 22nd the bees had but one good flight. After April 22nd the weather became considerably warmer, and they began building up rapidly, and they were in excellent condition for the clover bloom.

The average strength of the six colonies that had the extra moisture was not as great as in the former test, but as soon as they got fine weather they gained rapidly. Care was taken to see that the colonies in both tests had plenty of unsealed stores before fruit bloom and between fruit and clover bloom. This was done by uncapping one side of a frame of honey nearest to the cluster, allowing the bees to use up the honey for food and providing space for the queen to lay her eggs. Although so much moisture was in close proximity to the colonies, a great deal of the success of this experiment is, no doubt, due to the good cellar in which it was tried, the cellar having stone walls, cement floors, good ventilation, and the temperature being easily regulated. This goes to show that good ventilation and even temperature have a great deal to do with successful wintering. An excellent plan for ventilating is to have sliding ventilators in the doors, so that much or little air may be let in as desired. Also connect an extra stove pipe, provided with a damper, to the regular heating stove. This may be done by means of a T, or an extra flue will answer. Allow the pipe to extend into the cellar. This plan of ventilating has proved very successful.

Cellar Wintering.

Description of Cellar and General Arrangement of Hives. The cellar is below a private house. The walls are of stone and the floor of cement. The bee-room, 11 feet 6 inches wide, by 15 feet long and 7 feet high, allows three tiers of shelves and two passages. It is boarded off from the remainder of the cellar by a partition which extends all around the chamber, and far enough from the stone wall to allow an air space. Should a person have enough bees to fill the cellar the boarding could be left out. Under the cement floor a layer of one foot of stones varying in size acts as a drain and keeps the cellar perfectly dry. The lowest shelf is 18 inches

from the floor, the second 20 inches in the clear above, and the third 20 inches above that. Neither the hives on the third or uppermost shelf nor the uprights supporting the shelves touch the ceiling, so that no vibration can reach the hives from above. This chamber is thoroughly ventilated, as is also the whole cellar. Before entering the bee-room is a smaller compartment with a door leading outside and another leading to the bee-room. Both rooms have sliding ventilators in the doors, so that outside air may be let in at will. Ventilation is carefully attended to and sudden changes of temperature are avoided; for this, a thermometer which is always kept in the cellar, is watched. The best temperature for the bee cellar has been found to be from 42 to 48 degrees Fahrenheit. This arrangement has given entire satisfaction. In former years there was not proper ventilation, and the cellar was always damp. Since the concrete floor has been laid and the ventilators put in, the cellar has been much drier and cleaner. It is also rat and mouse proof, which is a very great advantage.

Experiment No. 1. Six colonies were put into winter quarters in the cellar and placed on the shelves. Under the back end of each hive was placed a three-inch block, each hive was besides raised from its own bottom board by one inch block being placed at the back so as to ensure free ventilation. All front entrances were left wide open, the wooden covers were all removed, and replaced with cushions made of chaff 4 inches thick, sufficiently wide and long to lap over the hive two inches. Temperatures were taken once each week all through the winter, and were kept very even, from 44 to 48 degrees. The bees were quiet, only a very slight hum being noticeable up to February, when the temperature, having risen to 48, the bees began to get uneasy and made considerable hum. Cold air was carefully let in during the night by opening the slides in the doors and closing them in the morning; this, of course, lowered the temperature, and the bees quieted down. During the past winter every colony in this experiment was perfectly dry and clean, and all came out in excellent condition. Average weight of each hive when put into winter quarters, 58½ pounds; when taken out on 22nd April, 49¼ pounds per hive, showing that each hive had lost 9¼ pounds on an average.

Experiment No. 2. Six colonies were put into the cellar and placed on the shelves, a three-inch block being placed between the bottom board and the brood chamber only in front, making the full entrance three inches high across the whole front. The wooden covers were removed and replaced with a chaff cushion. Temperature same as in Experiment No. 1. During the whole winter all the colonies in this experiment were perfectly dry and clean, and showed no uneasiness of any kind. The bees could be seen hanging in a quiet cluster below the frames any time during the winter. The average weight when put into winter quarters on November 23rd was 59 pounds 12 oz.; when taken out on 22nd April, 51 pounds 8 oz., showing that each hive had lost on an average 8 pounds 4 ounces.

Experiment No. 3. Six colonies were put into the cellar and placed on the shelves, with tops and bottom boards of the hives left on, just as they were brought in from the bee-yard. They were watched for dampness, mould, or dysentery, also to compare the amount of honey consumed. Temperature of cellar the same as in Experiment No. 1. During December and January all were very quiet. During February there was considerable humming. Drops of water were noticed along the entrance of three hives. There were but very few dead bees on the bottom board, and no sign of dysentery. On examination when set on their summer stands,

two of the hives had considerable moulded combs. The average weight when put into winter quarters, 58 pounds 10 oz., when taken out on 22nd April, 49 pounds 3 oz., showing that the average loss of each hive was 9 pounds 7 oz.

Experiment No. 4. Six colonies were put into the cellar and placed on the shelves, with bottoms of the hives left on, just as they were brought in from the bee-yard. The wooden covers were removed and nothing left on except a tightly sealed propolis quilt; the natural entrance was left wide open. Temperature of cellar same as in Experiment No. 1. During the entire winter the bees kept perfectly dry, and a very slight hum could be heard. There were but very few dead bees on the bottom board, and no sign of dysentery. On examination when set on their summer stands all the hives were found to be in first-class condition. The average weight when put into winter quarters November 23, was 59 pounds 15 oz.; when taken out on 22nd April, 51 pounds 3 oz., showing that on an average each had lost 8 pounds 12 oz.

Introducing Queens.

Eight queens have been introduced during the season, four on the Benton plan, and four with frames of brood taken from several hives. All queens belonging to the colonies that were to receive the imported queens were removed 24 hours before introducing the new queens.

The Benton Introducing Cage. The Benton mailing and introducing cage is ordinarily used over the country. This consists of an oblong block of wood with three holes bored nearly through, one of the end holes being filled with good candy, and the other two being left for the occupancy of the bees and queen. On the back of the cover are printed the directions for introducing, and at each end of the cage is a small hole bored through the end of the grain of wood, but which in the mails is stopped by a cork. One hole is for the admission of the bees and queen preparatory to mailing, and the other for the liberation of the queen, by the bees eating out the candy in the course of twenty or thirty hours, thus releasing her automatically. When the cage is received, the cork covering the candy is to be removed, as well as the wooden cover over the wire cloth. The cage is then placed on top of the frames, care being taken to place the wire cloth over the space between two frames in the center of the brood-nest. The queen is then released by the bees in the manner explained.

I would advise all to have extra cages for introducing, so that no disease may be brought in with the queen. See that the cage you introduce with is thoroughly cleaned, and have fresh food made from your own honey placed in the cage in readiness. Then remove the queen and bees from the cage they were received in to the one prepared for them and follow directions above.

How to Make Honey and Sugar Thick for Feeding. Take good thick honey and heat (not boil) it until it becomes very thin, and then stir into pulverized sugar. After stirring in all the sugar the honey will absorb, take it out of the utensil in which it is mixed, and thoroughly knead it with the hands. The kneading will make it more pliable and soft, so that it will absorb or take up more sugar. For summer use it should be worked, mixing in a little more sugar until the dough is so stiff as not to work readily, and it should then be allowed to stand for a day or two; and if still so soft as to run, a little more sugar should be kneaded in. A good deal will depend upon the season of the year; there should be more sugar in proportion to the honey in warm weather than in cool weather.

Another Method of Introducing Queens. Select a strong colony, remove the wooden cover, and place a fine wire netting over the tops of the brood frames to prevent passage from one hive to the other; place on top of this wire cloth a brood chamber with four frames, of well sealed brood, selected from different hives, with young bees just hatching out, but with no unsealed brood. Put the queen in this, and close the hive bee tight, and keep it over the strong colony four or five days. By that time a respectable force of young workers will be present, and the hive may be placed on the stand where it is to remain, and the entrance to be made large enough for only one bee to pass at a time. As a matter of precaution against robbing, the entrance may be opened as the colony gets stronger. This latter plan has never failed with me.

Experiments to Determine Which Bees Would Consume Most of, Honey or Sugar, While Being Confined in Their Winter Quarters.

Eight colonies in Langstroth hives were selected for this experiment, all of as nearly equal strength as could be secured. On September 1st their natural stores were removed from both sets. On September 2nd all were weighed as follows :—

(a) The four colonies fed Sugar syrup : No. 1 weighed 30 lbs. 7 oz.; No. 2, 31 lbs. 12 oz.; No. 3, 31 lbs. 10 oz.; No. 4, 31 lbs. 3 oz.; average of weight, 31 lbs. 4 oz.

(b) The four colonies fed Extracted Honey : No. 1, weight 30 lbs. 9 oz.; No. 2, 31 lbs. 10 oz.; No. 3, 30 lbs 12 oz.; No. 4, 31 lbs. 1 oz.; or an average of 31 pounds.

Miller feeders were placed in empty section supers, close to the top of the brood frames, any part of the brood frames not covered by the feeder being covered by a propolis quilt cut so as to allow the bees a passage through it. By keeping the feeder well packed around, except where the bees enter, the heat is kept in and at the same time the bees cannot daub themselves with the liquid. In both experiments the bees had a constant supply of syrup and honey. Both the honey and the syrup were supplied to the bees at about blood heat. The syrup was made of the best granulated sugar, two parts to one of water by weight. The water was first brought to a boil, then the boiler was set back on the stove and the sugar having been poured in, the mixture was stirred until all was dissolved.

The four colonies fed sugar syrup when put into winter quarters November 24th, weighed as follows:—No. 1, 61 lbs. 4 oz.; No. 2, 62 lbs. 9 oz.; No. 3, 62 lbs. 7 oz.; No. 4, 62 lbs. 0 oz.; or an average of 62 lbs. 1 oz.

The four colonies fed extracted honey when put into winter quarters on November 24th weighed as follows :—No. 1, 62 lbs. 13 oz.; No. 2, 62 lbs. 14 oz.; No. 3, 62 lbs.; No. 4, 62 lbs. 5 oz.; or an average of 62 lbs. 8 oz.

The four colonies fed sugar syrup when taken from their winter quarters March 22nd weighed as follows :—No. 1, 47 lbs. 3 oz.; No. 2, 49 lbs. 4 oz.; No. 3, 51 lbs. 5 oz.; No. 4, 51 lbs. 8 oz.; average, 49 lbs. 13 oz.

The four colonies fed extracted honey when taken from their winter quarters March 22nd weighed as follows :— No. 1, 50 lbs. 9 oz.; No. 2, 53 lbs. 1 oz.: No. 3, 51 lbs. 12 oz.; No. 4, 51 lbs. 2 oz. Average, 51 lbs. 10 oz. Difference in favor of the honey, 1 lb. 13 oz per colony.

When put into winter quarters they were placed on the shelves in the cellar, the wooden covers were raised at one end ½ an inch, while the sealed propolis quilt was left undisturbed. The hives were all given extra ventilation at the bottom by placing at the entrance a wooden block between the

bottom board and the brood chamber, thus raising the front of the brood chamber three inches extra. During the balance of November and December very slight humming could be heard; January and February scarcely any appreciable hum could be heard. During the whole winter there was no sign of uneasiness of any kind and very few dead bees about the entrance, the bottom boards were quite clean and no sign of dysentery in either experiment.

All came out in first-class condition and built up rapidly for the honey flow.

A MEMBER : How was the sugar syrup made ?

Mr. FIXTER : The sugar is made two parts of sugar to one of water. We give them a constant supply and weigh the hives when we are through. We find we lose about the amount of water we add. The honey and the sugar weigh about the same when they were put into winter quarters. We have to add more sugar than we do with honey.

Mr. BYER : The deductions are that one pound of sugar is about equal to one pound of honey as to wintering results.

Mr. FIXTER : I think the honey is in favor of about a pound and thirteen ounces to each hive. There is a slight difference in favor of the honey. I would never advise any man to feed sugar for wintering. I would say provide yourselves with full drawn combs. When carrying on this test I did not think it was just the right thing to advise feeding sugar, because I have had people come to the Experimental Farm, and say "I am going to take every pound of honey out of my brood chamber; I can feed sugar; it only costs five cents a pound." There is trouble of that going to far, and feeding too much sugar in other ways. No man should ever extract a pound of honey out of the brood chamber unless it be for feed. What would be the use of that ?

Another subject I would to take up some time is extracting honey out of the brood chamber. When you find that your bees are not strong enough in the fall, put them in.

Mr. BROWN : I understand Mr. Fixter would prefer to give the full combs of honey in preference to the syrup of liquid honey, for feed.

Mr. FIXTER : I would rather give the bees fully sealed combs every time, if it was the best clover honey, fed back.

Mr. GRAINGER : In giving capped stores how would you do in case you wanted to stimulate in the fall. Don't you think if you fed either honey or syrup early enough in the season, in case you wanted to stimulate, that that would have as good an effect as giving sealed combs ?

Mr. FIXTER : I do not practice that.

Mr. HOLTERMANN : I would say it might. But when we are dealing with living things we have to be very careful. I would like to see Mr. Fixter's experiments conducted with much larger groups, and in order to make those experiments truly valuable I think we should discourage the feeding of syrup, and still more the feeding back of honey, because in feeding back honey generally through the country there is always a danger that foul brood germs may be present. If the experiment is continued next year, I would suggest that the stocks be weighed before they are fed at all, and then feed them syrup and see how much they lose, and see again what amount of stores are consumed during the winter.

Mr. FIXTER : That is in the paper.

Mr. Hurley : Last fall when feeding my bees for foul brood I had to treat the whole of them, and it was after the first of August when I

started. Those bees built out their new comb on sugar syrup and wintered on it. They had absolutely nothing else and they came through the winter successfully.

Mr. Sibbald : There is no question in my mind about bees wintering well on sugar syrup. I am sure they will; and they will winter well on good ripe honey. There is no question about that. I understand you took your brood of some other colony and put it on a strong colony and put in a queen into that.

Mr. Fixter : That is the way I did it.

A Member : Did you destroy the queen below, or was she left there ?

Mr. Fixter : She was left below; there was wire netting put between.

Mr. Grainger : The object of covering that over is to keep them in a warm room ?

Mr. Fixter : Yes.

Mr. Smith : There is one experiment that might be tried. It might be well for Mr. Fixter, if he could, to determine how much boiling honey would require to make it a safe food for wintering bees; that is to kill any trace of foul brood.

Mr. Fixter : I do not know how that would be managed. First of all we would have to get diseased honey.

Mr. Smith : It might be got for experimental purposes.

Mr. Fixter : That would not be in my line; but, of course, I could get assistance from Prof. Shutt; it could be arranged if we could get diseased honey and feed it.

Mr. McEvoy : I do not want you to feed honey at all at any time; but if you will bring it to a sharp bubbling boil that will kill any germs.

Mr. Chadwick : Would it be out of order to ask whether honey gathered where the colony has been exposed to the spraying of apple blossom or to colonies that have been destroyed or partly destroyed, would be suitable to put into another colony?

The President : Honey that is in a hive that has chilled brood should be all right; there should not be anything wrong with the honey.

PREVENTION AND CONTROL OF SWARMING WITH THE HEDDEN HIVE.

By F. J. Miller, London.

The subject assigned me, "The Prevention and Control of Swarming as used with the Hedden Hive in the Production of Extracted Honey," is one leading up from early spring management; hence my article begins with the work as the hives leave the winter cases. At this time supers are put on all colonies showing sufficient strength. Queen clipping follows as rapidly as possible, great care being taken that no queen is allowed to pass unseen, although last year's record may show her to have been clipped. Apple bloom is now closing, and some queens may yet remain unclipped. This makes but little difference with the short-cut methods of handling the divisible brood chamber hive, and the work is completed. As I must know that every queen is clipped in order to carry out our future plans.

During this early management a watchful eye is kept that no colony becomes congested with honey in the brood nest.

If the queen is being crowded, and not allowed all the room she can occupy, our divisible brood-chamber hive affords the quickest results possible with the least amount of labor. We simply divide the centre of the brood nest horizontally, by exchanging the two sectional parts of the brood-chamber, i. e., by replacing the bottom chamber with the top one, thus placing honey in the centre of the brood-nest. This being averse to the instinct of the bees, the honey is quickly removed. The brood now extending to the top bars under the queen excluder, the honey is carried above this line into the supers, having empty cells for the use of the queen, in the centre of the brood nest as it now exists. During the week of honey dearth between fruit bloom and white clover, this interchanging of the brood nest, has the same stimulating effect as feeding, or the uncapping of honey.

With the opening of white clover, supers are again added underneath on the turning up plan as soon as the last one contains from five to seven pounds of nectar.

About this time, or as soon as the indications of swarming are apparent, each yard is visited as nearly every four days as the weather will permit. During these visits each hive is examined for queen cells, by simply raising one end of the top section of the brood-chamber, and drawing slightly forward, and raising it up about six inches, thus giving a view of the bottom bars which will expose a part of any queen cells that may be present. If there are no cells in view the hive is closed, the work being completed; but, if, on the contrary, queen cells are started, or in any stage of completion, then a division is made as follows : The top section of the brood-chamber with queen excluder, and in most cases with the queen, is removed, and placed on top of a chamber of foundation or empty combs. At the side of the colony, also placing a chamber of foundation or empty combs on the colony, add a queen excluder and return all supers to the colony. All danger of swarming is now over for the present. An abbreviated entry is now made, showing at a glance the date of this division. On returning to the yard in four days, the usual examination takes place. In five cases out of six the entrance of the division made four days ago will show dead drones, indicating the presence of the queen. A record now being made to this effect, no further work is required on this division or parent colony during this visit. Four days later, or on the second visit after the division is made, the colony must have the queen cells removed from the combs in the bottom section of the brood-chamber; and as they are likely to have larvae yet held back of which they will again start queen cells, they require cutting again at any time within the next two visits. Either give a virgin, or laying queen, or, return the division to the colony. Or the division may be left in the present condition beside the colony until the busy season is over, when according to the strength and amount of honey it contains it is made use of, either to be placed on a separate stand, or to be united with another division. The system here outlined is one I have used for several years, and have found it to work admirably. The loss from absconding swarms does not exceed an average of two, or, possibly three, for each yard during the season. Being a system of short-cuts, it is capable of much improvement, according to the skill of the apiarist, and it reduces the amount of skilled labor to a minimum, one man being able to properly attend to three or four yards of 90 or 100 colonies each, doing all of the yard work himself, and only requiring the aid of one unskilled helper in the honey house during extracting.

Having endeavored to give as concise an acount of my work as possible. I may have left out detail, but trust it may bring out either discussio n or thought, that may be profitable to the members present.

Mr. Hoshal : If I understand Mr. Miller right in his description of what he was doing to prevent his bees from swarming giving them room beneath the brood-chamber, I think it is right. All of you know as well as I know that bees worked for comb honey are much more likely to swarm than those worked for extracted honey. There is a way of getting at comb honey by which the bees are no more liable to swarm than for extracted honey. It is the way they did it on the old box hive system. You put a swarm into the old box hive, and they begin to work at the top, and as long as there is room at the bottom to extend the brood-nest down they will continue to work there, and they will fill that before they swarm. On comb-honey we cannot do that. That is exactly what Mr. Miller is doing. These charts which I showed you before show that the bees store their honey above their brood immediately next to it and below. As they crowd the brood-nest below and these cells it lessens the brood-chamber and they are going to move that up. They have got to put it somewhere else, and they put it at the bottom, running it down. As soon as they get to the bottom, they get stuck and can not go any farther, and they swarm. If you keep supplying them at the bottom with comb they do not swarm as long as it is there.

I might say I have not been practising the method of preventing swarming in these artificial ways, or what they call "shook swarms," or by division. Not that I condemn it or find fault with it, but I have never been in a position where I have been forced to do it, or thought it advisable to do it. I am glad Mr. Miller has presented it to us to-day in the way in which he has. It is easily gotten at with the sectional hive in the way he says. I was interested in what he had to say. One object I had here to-day was to learn something about these shook swarms and dividing colonies so that you can go and leave an out-yard, and have nobody there, and be assured they will be all right. I have always advocated you can produce brood at any time so as to put it into the field in time to catch the honey flow, and that very thing will do it. But unless you can do it in time to do that, I would rather not do it, because you are producing a lot of bees to be consumers rather than producers.

Mr. Miller : My paper has made that clear. It is done in the spring, as soon as the queen is being crowded. That never occurs until the time of and the week following, apple bloom. There is always a period between apple bloom and white clover which, if not in many cases supplied, the bees will stop brood-rearing to a large extent. This interchange being done, the honey is forced into the centre of the brood-nest, which acts as a stimulant, and by that means when the white clover opens, my brood-chamber is a solid mass of brood without any labor.

Mr. Hoshal : I agree with Mr. Miller in that. I only gave the illustration of crowding the brood-chamber; that only takes place just before honey flow. I do not put on the surplus case until the honey flow comes. From the beginning of spring until honey flow begins I do everything I can to force the brood, but once the honey flow comes I then cut it off.

Mr. Pettit: I believe I did not just fully catch Mr. Miller's method of preventing swarming, and I would like if Mr. Miller in a few words would state again what he does when he finds queen cells in the brood-chamber on going through the yard. I understand he has those two cases in the brood-chamber; he raises up the upper ones and looks on the bottom bars of the combs in the upper ones and finds the queen cells. What does he do next ?

Mr. Miller : I simply make a division by setting that top chamber to one side on the bottom board and placing on the top of it a chamber of the same description either of empty comb or foundation. I then put on a queen-excluder on the other one, the parent colony, with the same chamber but empty comb for foundation, returning the supers to the colony on the old stand. The queen is then in the division, and she will never swarm. You can leave your cells there in perfect safety. She will not swarm. I have tried this for the last five years purposely in my three yards. In the next visit we prove she is there simply by the drones at the entrance. You do not open either the division or the colony on the next visit in five cases out of six because the entrance diagnosis gives you the conclusion. But on the return trip, in eight days, the cells in the bottom chamber must be removed only on the eight combs. You will notice up until the time when swarming generally takes place we guard against it by adding supers. I never allow a super to contain more than from five to seven pounds of nectar before there is one inserted underneath.

Mr. Pettit : Of course I do not doubt Mr. Miller's word, but in my experience—I have not tried the Hedden hive—to make a division in that way it does not seem to me would make me feel secure from swarming. Another point in connection with the Hedden hive : From Mr. Hoshal's address yesterday, we find that he does not take off the outside wintering cases until about the first of June.

Mr. Hoshal : You must remember that there are a lot of things I left out. A great many of the wintering cases I leave on that long if I can; if I cannot, I take them off before.

Mr. Pettit : With a colony wintered in one of those small cases, which would be about the half of an eight-frame Langstroth brood-chamber, and not requiring any room until the 1st of June, the swarming problem would not be a very serious one. Of course, as you all know, I am an advocate of larger hives, and the Langstroth combs, and I find that my colonies, the majority of them, in an average year require supers at the beginning of the fruit bloom, or about that time. I give them plenty of room at that time, and at the beginning of white clover I give as much room as I think they will need for the whole white clover flow, and by this means swarming is kept down to a large extent.

Mr. Miller : May I ask if you are able to control swarming to the extent you can leave your yards without any assistance ? This is a large factor in the use of the Hedden hive. We run the out-yards simply by periodical visits.

Mr. Pettit : Yes, my yards are all left with no one in attendance except to visit once a week, and we have enough bees to keep two men busy by these visits.

Mr. Miller : I run three hundred colonies and do the work alone with the exception of an unskilled helper in the extracting house. I have no yard help.

Mr. Holtermann : The way I run the bees, using a twelve frame Langstroth hive, is to go to the yard once a week unless there is something special. We do not prevent swarming entirely. Probably Mr. Miller does not either.

Mr. Miller : I said in my paper from two to three in the yard.

Mr. Holtermann : Unless there is something very much to be gained in using the Hedden hive, I would not like the impression to go out generally that it is desirable to use another frame which is not in general use.

Another objection to the Hedden hive is that an unskilled man may make serious blunders which he would not make with another.

Mr. Hosmal : My idea in presenting the subject to you yesterday was not to present a hive at all. I would like to eliminate the hive question from it entirely. Bees work along certain definite lines. They have a certain instinct and a certain way to work, and the way to accomplish the most with them is to keep along those lines—I do not care whether you do it with a frame hive, a box hive, or a Hedden hive.

Mr. Holtermann : In looking for queen cells you find that farther in on the comb there are occasionally queen cells which even when you have the entire side of the comb exposed are a little difficult to see.

Mr. Miller : It matters not how many cells are built on the side of a comb, there is almost invariably a sufficient showing from underneath. I have nothing to do with the cells but to know they are present; then I follow out my work. I am not here to fight for the Hedden hive. I do not wish to convert any man to the use of the Hedden hive; but as I understand you, I have short-cuts now that you do not see, and I cannot convince you of here. I am not here to convince you of it. I simply read my paper. The help employed would be three in Mr. Holtermann's case and one in mine.

Mr. Pettit : I have found in going over a brood-chamber looking for cells, that we think we have all the cells or perhaps we would not find any cells at all until we got two-thirds of the way through, and took out the next comb, and there in some out of the way corner would be a cell, and that left would mean a swarm.

Mr. Miller : If I could make it clear, in the Hedden system we do not lift the comb; we are not looking for cells on the comb. It makes no difference whether there are five hundred cells in the colony; I simply know there are cells present, and my next move destroys those cells whether there be one or many.

Mr. Pettit : There might be only one cell.

Mr. Miller : But that cell would show from the bottom. I never knew it to fail. We divide our brood chamber there. We handle the colony to prevent swarming.

Mr. Chadwick : My hives are Langstroth. Would it be advisable when this gets quite full of brood to put a super below or another body below filled up with combs or foundation and let the bees work away?

Mr. Miller : You are now giving me a problem which I could not work out satisfactorily at the moment. If I were adding a super there I would put it on top if the weather is sufficiently warm. You have a system now of management by frames which would not work if it was the same as I am using.

The President : Would the addition of another case control the swarming ?

Mr. Pettit : No. After it is started you cannot do anything. In connection with this swarming business there is one thing we ought to keep always before us, and that is locality. Where we have one continuous flow from spring until fall the swarming problem is very serious. Where we have that break between fruit bloom and clover, possibly between clover and basswood, and then between basswood and the fall flow, it so effectually checks swarming that there is not nearly the trouble with some as with others.

Mr. Darling : I use a deep frame, and there have been many times in my experience when the bees have swarmed with me without either honey

or brood going to the bottom of any frame in the hive. I do not think it would be any advantage to place a second division of the Langstroth hive underneath.

Mr. Holtermann moved, seconded by Mr. Pettit, that the executive committee be reappointed as a committee to revise the prize list for the Honey Show. Carried.

The PRESIDENT : The proposed amendments to the Foul Brood Act was to be given some time for discussion. I will ask for anything on that now.

Mr. DARLING : I think in view of the lack of time, and the suggestions contained in the Appendix, we had better let that matter drop.

Mr. SPARLING : I threw out the suggestion yesterday that the Inspector be required to keep a record book for the executive of our society. I think that will answer every purpose.

Mr. HURLEY : I suggest it would be better if the President would keep a record of all that has been done during his year, and the books should be passed on the next President. I do not think it would be proper for the Inspector to give a confidential report of what he does and what he finds into the hands of the executive.

Mr. COUSE : In Prof. Harrison's address yesterday he asked that we recognize the work of the Ontario Agricultural College at Guelph in some way. He asked could we not give prizes or something like that, or medals to the students writing the best essays on the work to be read before the Association or before a committee of the Association.

Mr. DARLING : With regard to the suggestion, this meeting cannot do anything more than offer a suggestion to the Directors. If there is a resolution passed we can deal with it later on.

Mr. CRAIG : I expect the prize would be a small one, and we would be favorable to that sort of thing, and we can leave that to the executive.

The Convention then adjourned.

DIRECTORS' MEETING.

At the directors' meeting, following the annual meeting, W. Couse was reappointed Secretary, and Martin Emigh, Treasurer.

The sum of $200 was appropriated to affiliated societies.

The President, Vice-President, 2nd Vice-President, and Secretary were appointed as the Executive Committee.

It was decided to give the members the *Canadian Bee Journal* on the usual terms.

The Executive Committee were given powers to do any necessary business during the year, arranging programme, paying accounts, etc.

It was decided to have the Inspector of Apiaries keep a record book for the use of the President of the Association, giving the county and apiary inspected, date of first inspection, number of colonies in the apiary, number inspected, number found diseased, date of second inspection, and condition in which then found.

The Board directed the Secretary to request the secretaries of the different local affiliated societies to send requests to the President for the assistance of the Inspector of Apiaries.

It was decided to get copies of the different papers read at the annual meeting, and give them to persons wishing them at cost of copying.

The Secretary was instructed to have copies of the notices of Spraying Fruit Trees at a time that it injures the bees, printed and distributed to the members of the Association, and likewise copies of the Foul Brood circular.

W. COUSE, Secretary.

ANNUAL REPORTS

OF THE

Dairymen's Associations

OF THE

PROVINCE OF ONTARIO

1904

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE)

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TORONTO

To the Honourable WILLIAM MORTIMER CLARK, K. C.,

Lieutenant-Governor of the Province of Ontario.

MAY IT PLEASE YOUR HONOUR:

I have the pleasure to present herewith for the consideration of your Honour the Report of The Dairymen's Association of Eastern Ontario for 1904; and the Report of The Dairymen's Association of Western Ontario for 1904.

Respectfully submitted,

NELSON MONTEITH,

Minister of Agriculture.

TORONTO, 1905.

OFFICERS FOR 1905.

DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO.

President—D. Derbyshire, Brockville.
First Vice-President—J. R. Dargavel, Elgin.
Second Vice-President—G. G. Publow, Kingston.
Third Vice-President—L. L. Gallagher, Wilton.
Secretary R. G. Murphy, Brockville.
Treasurer—J. R. Dargavel, Elgin.
Auditors—Modern Bird, Stirling.
F. W. Brenton, Belleville.

Directors.

1. Edward Kidd, North Gower.
2. William Eager, Morrisburg.
3. Levi Patton, Brockville.
4. James Whitton, Wellman's Corners.
5. T. B. Carlaw, Warkworth.
6. Henry Glendinning, Manilla.

Honorary Director, James Anderson, Mountain View.

DAIRYMEN'S ASSOCIATION OF WESTERN ONTARIO,

Honorary President—Thos. Ballantyne, Stratford.
Honorary Vice-President—John N. Paget, Canboro'.
President—Robert Johnston, St. Thomas.
First Vice-President—I. W. Steinhoff, Stratford.
Second Vice-President—Thos. Ballantyne, Jr., Stratford.
Third Vice-President—John Brodie, Mapleton.

Directors.

7. John McQuaker, Owen Sound
8. J. J. Parsons, Jarvis.
9. W. A. Bothwell, Hickson.
10. James Connolly, Holmesville.
11. W. K. MacLeod, Vanneck.
12. M. R. Brown, Appin.
13. A. F. MacLaren, M. P., Stratford.

Representatives to Industrial Fair, Toronto—A. F. MacLaren, M.P. and J. N. Paget.
Representatives to Western Fair, London—I. W. Steinhoff and John R. Isaacs.

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DAIRYMEN'S ASSOCIATION OF EASTERN ONTARIO.

ANNUAL MEETING.

The twenty-eight annual convention of the Dairymen's Association of Eastern Ontario was held in the city of Brockville on the 4th, 5th, and 6th of January, 1905. The chair was occupied by Mr. D. Derbyshire, M.P. There was a large attendance of members, and much enthusiasm was exhibited. The auditorium was profusely decorated with bunting, flags, and other emblems. Such mottoes as "Welcome to Canada's Best Town," and "Dairying Canada's National Industry," were conspicuously placed. Oars, paddles, and other aquatic emblems suggestive of the "Island City," were also suitably arrayed on the walls. At each of the evening sessions an excellent musical programme was interspersed with the speeches. It was quite evident that the Local Committee had left nothing undone to make the Convention a decided success, and the report of the proceedings shows that their object was fully achieved.

THE PRESIDENT'S ADDRESS.

By D. Derbyshire, M.P., Brockville.

I am very much gratified that the officers of this Association, in their wisdom, saw fit to hold their twenty-eighth annual convention of the Eastern Ontario Dairymen's Association in Brockville, Canada's best town, and the original home of modern dairying. You will find our citizens public spirited, our public buildings, churches, manufacturing establishments, and business houses better fitted to carry on their respective vocations than any other place in Eastern Ontario. I sincerely hope you will visit some of these places and verify what I say.

I wish, at the outset, to express my appreciation of the honor that has been conferred upon me by selecting me through a series of years as your President, and for the courtesy and kindness shown me by the officers and members of the Association. I have been identified with this great national industry in all its various forms, from the production of the milk on the farm to the marketing of the product, and have noted its growth from a small beginning to its present mammoth proportions. In the early days of this Association, when we were struggling and putting forth individual energy for its maintenance, and when we felt that the success of the dairy business in this country depended largely upon the life of this Association, the Provincial Government stepped in and aided our efforts financially and otherwise, and have continued to do so more liberally from year to year as the work progressed. Dairy schools and travelling dairies were instituted and dairy bulletins, etc., issued, and the dairymen began to see that their work was being recognized, and they themselves were imbued with a desire to make progress, and were thus ready to accept this aid. Your Association saw the necessity of making the product of the various factories in this Province more uniform in quality, so we employed the services of competent men as instructors, and most prominent among them is our present chief instructor, Mr. G. G. Publow, to whose untiring energy the dairymen of all Canada own much.

Your Association recognized the necessity of keeping a closer supervision of the manufacture of the dairy products under our jurisdiction, so that greater uniformity of product might be established, advice and encouragement given, and the progress and prospect of the industry ascertained; and as it was physically impossible for Inspector Publow to visit all the factories in this Eastern District, others were from year to year appointed, until we had seven instructors in our employ: but even this number very soon proved inadequate, and the whole of Eastern Ontario was afterwards grouped into twenty-five different syndicates, and twenty-five competent men placed in charge thereof, all being under the supervision of Chief Instructor Publow, who will later on give you a detailed statement of the progress of their work. The good work of these men, as a whole, has been reflected in the improvement of the quality of the goods. as well as its uniformity.

The Hon. Mr. Dryden, readily seeing that the small grant given was inadequate for the work undertoken, came to our relief, and paid each of these instructors and also our chief instructor from his Department in Toronto this year, besides enlarging and improving our Dairy School at Kingston, which we appreciate very much, and present indications are that the work of instruction will require to be extended even more the comng year.

We are now convened for a practical purpose—for the developing of our great dairy industry, to correct error and to diffuse the best dairy knowledge among our farmers and our manufacturers. We have always through our Association work been trying to diffuse right ideas in every possible day, and I feel proud to-day of the great good we have been able to accomplish.

We are also very much pleased with the assistance that the Department of Agriculture of our Dominion, under the direction of our able Minister, the Hon Sydney Fisher, has given to the dairymen in furnishing refrigerator cars for the safe transportation of our goods to Montreal, and for the cool compartments on our steamship lines, for the safe delivery of our dairy products to the British markets, and also for the establishment throughout this Dominion as well as in this town of the illustration stations for the educating of our dairymen in establishing better curing rooms of their own, and we trust this good work will be enlarged and improved.

Our make in 1904 has been about 2,700,000 boxes of cheese, worth about $20,000,000, which is about 300,000 boxes short of 1903. and about $7,000,000 short in value. Considerable of this shortage could have been avoided provided our dairymen had shown the same zeal as they did in 1903 in the production of milk, when prices were high. When prices are low we should use every possible means to increase our output, so that we might have about the same money.

Our butter business during this year shows a good deal of improvement. We exported about 550,000 packages, worth $7,500,000 an increase of nearly $2,000,000, and owing to the fine quality about double the quantity of butter was consumed at home over that exported.

Our bacon trade was somewhat short this year, having received only about $14,000,000 for the same, but the total exports of our cheese. butter and bacon, amount to about $41,500,000, being about $6.500,000 short of last year.

With the general improvement in trade and with higher prices now assured, we should do very much better during 1905. We ask the hearty co-operation of every dairyman in Eastern Ontario to attain this very desirable end. Can we count on this?

With our past experience, with the full knowledge that the production of cheese, butter and bacon is the one industry that is exactly suited to our section, all our energies should be directed to improve the quality and increase the quantity of our goods, and all should understand that only by united effort first, by every dairyman producing only the cleanest and most wholesome milk, by the factories being up to date, with the most improved curing rooms, by the makers all being graduates of our dairy school, and all concerned taking a deep interest in making the finest goods, attending to every little detail, having clean waggons with proper covers for delivering the goods to the railway stations, clean refrigerator or ventilated cars to convey the products to Montreal, and steamships properly fitted with cold air chambers conveying the same to our ultimate market, all this will assure us of higher prices and a firmer grip upon the British market than we ever before had.

Again I welcome you to Brockville, and I hope our deliberations will be of such a character as will enthuse every dairyman to do better work in 1905 than he has ever done before, which will assure prosperity to every dairyman and every industry in Eastern Ontario.

COMMITTEES.

The following committees were then appointed:

Business.—Mayor Geash, R. G. Murphy, L. Patton, D. Derbyshire, and L. L. Gallagher.

Nominations.—J. R. Dargavel, Wm. Eager, and James Whitton.

Legislation.—Wm. Eager, M. K. Everts, J. R. Dargavel, R. G. Murphy, and E. Kidd, M.P.

Resolutions.—R. G. Murphy, H. Glendinning, T. B. Carlaw, James Whitton, and John McTavish.

TESTING INDIVIDUAL COWS IN SEVENTY-TWO HERDS.

By C. F. Whitley, Central Experimental Farm, Ottawa.

Under instructions issued by the Department of Agriculture, 72 farmers took samples of milk three times a month from the individual cows in their dairies. Each man was furnished with a box of sample bottles and a small dipper. Blank forms were also supplied for recording weights of milk and details of food. The percentage of fat was ascertained by the Babcock test at the Government Cool Cheese Curing Room at Cowansville, Quebec. The work is still in progress, but a few sample records are of interest.

Table I.—A Record of 22 Cows for the Month of June, 1904.

Total yield, 17,845 lbs. milk, 722.5 lbs. fat. Averages per cow, 811 lbs milk, 4.0 test, 32.4 lbs. fat. General June average, 652 lbs. milk, 3.8 test, 25 lbs. fat.

Breed.	Milk. lbs.	Test.	Fat. lbs.	Breed.	Milk. lbs.	Test.	Fat. lbs.
Jersey	280	4.1	11.4	Holstein	915	3.6	32.9
Holstein	620	2.9	17.9	Scrub	770	4.3	33.1
Guernsey	565	3.3	18.9	Holstein	1,010	3.3	33.3
Holstein	605	3.6	21.7	Ayrshire	905	3.8	34.3
Holstein	810	3.5	28.3	Jersey	920	4.0	36.8
Ayrshire	720	4.0	28.8	Native	865	4.3	37.1
Native	720	4.1	29.5	Guernsey	855	4.4	37.6
Native	730	4.1	29.9	Guernsey	945	4.1	38.7
Jersey	770	3.9	30.0	Native	830	5.0	41.5
Native	805	3.8	30.5	Jersey	1,090	4.1	44.6
				Jersey	990	4.6	45.5
				Jersey	1,115	5.4	60.2

All the cows calved in March or April except No. 1, (a two-year-old). The ages run from 3 to 10. To the right of the centre dividing line are all those above the average production of the herd of 22; to the left are those below the average. This emphasizes the fact that good production is not confined to any one breed. There are good cows in all breeds. Below the average are to be found a Guernsey, an Ayrshire, and 2 Jerseys; above the average are a scrub and two natives. This is a good herd record, running well above the average of the 945 cows tested in June. Twenty cows in June, out of all tested, gave over 1,000 lbs. milk, and this dairy contains three.

During June and the succeeding three months these 22 cows produced from 79 to 234 pounds of butter each, with an average of 145 lbs., the above order not being materially changed.

TABLE II.—A RECORD OF 27 COWS FOR JULY, 1904.

1 Jersey, 3 Ayrshires, 7 Holsteins, 16 Shorthorns. Total yield, 13,760 lbs. milk, 473.7 lbs. fat. Average per cow, 509 lbs. milk, 17.5 lbs. fat, test 3.5. Average of 1,120 cow, 558 lbs. milk, 20.8 lbs. fat, test, 3.7. Variation per cow, from 10.9 lbs. fat, to 23.6 lbs, (Holstein). Test from 2.6 to 4.0 fat

This is typical of several herds consisting of mixed grades. The average record per cow is poor, noticeably below average of the 1,120 cows in July.

The best showing is made by a Holstein grade, whose record is more than double the poorest cow.

This dairy has 5 cows more than the dairy in Table I., and yet produced 4,000 lbs. less milk.

The record emphasizes the need for knowing definitely the individual production.

Another July record is that 6 cows gave 2,515 lbs. milk, while another dairy of 12 cows gave 8,020; twice as many cows, gave 3 times as much milk.

In September one lot of 23 cows gave 8,120 lbs. milk, and another lot of 23 yielded 11,200 lbs.

The average production per cow must be improved by weeding out the poor ones. Figuring goes well with farming. With forethought and figures, the production of butter in the average farm herd can be increased at least 40 lbs. per year in five years. It has been done scores of times. It is safe to say that almost every farmer milking 20 cows has 3 on which he loses money. Till he figures he does not know which they are. It will pay to find out.

TABLE III.—SAMPLE RECORDS OF TOTAL POUNDS BUTTER PER COW IN SIX DIFFERENT DAIRIES.

Cow No.	Four months.		Five months.			Six months.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	40	51	59	103	147	134
2	54	72	65	107	162	154
3	56	74	72	118	168	156
4	61	83	78	119	172	157
5	70	100	85	120	174	160
6	77	101	99	126	176	164
7	82	104	100	135	189	168
8	84	105	102	135	194	170
9	86	106	111	143	210	176
10	94	120	.....	149	216	180
11	97	121	.....	.....	222	183
12	107	127	.....	.....	251	187
13	112	.....	.....	.....	.....	197
14	114	.....	.....	.....	.....	237
Average per cow ..	81	97	85	125	190	173

This almost speaks for itself, showing the wide variation in the total yield of butter for the periods mentioned by individual animals of the same herd. In the first row of vertical figures representing the pounds of butter yielded by each of the 14 cows in one dairy, the range is from 40 to 114 lbs., the best nearly 3 times the poorest. The average is 81 lbs. per cow for four months, while the average of all the cows tested in the same period is 98 lbs. Would this man not be better off if he disposed of at least 4 cows?

The next lot runs from 51 to 127 lbs., per cow, with again an average not up to the census average.

It is probable that both men think they have pretty good cows.

Taking the yields for 5 months, a good showing is made by the dairy averaging 190 lbs., which is more than double the 85 lb. average, and well over the census average of 115 lbs. per cow for 5 months. Notice that every single cow in the herd is above the census average.

These figures are encouraging. This man's record can be, and should be equalled on a thousand farms in the next five years. Such results are attained by using scales, and the Babcock test to detect the robber cow and get rid of her. Then by the use of a good dairy-bred sire, and aiming at a standard of say 6,000 lbs. of milk or 250 lbs. of butter per annum, per cow, a good herd can speedily be graded up. There are hundreds of dairy farmers who have raised their butter production in a few years from 150 or 175 pounds to 300 lbs. per cow.

TABLE IV.—TEN COWS, FOUR MONTHS.

	Dairy No. 4.			Dairy No. 67.		
	Pounds of milk.	Pounds of fat.	Value at 18 cents per lb.	Pounds of milk.	Pounds of fat.	Value at 18 cents per lb.
Ten cows—four months ...	20,040	832	$149 76	23,790	942	$169 56
Twenty cows—four months.	38,825	1,678	302 04	50,410	2,418	435 24

Between the two men owning 10 cows each, there is a difference of a good solid $20 in hard cash as the result of four months' milking. This difference is largely increased in the case of the 20 cow dairies, where the one on the right has $133 more. For what? His feed, his butter? No; the use of his brains.

He has lessened cost of producing milk by applying fundamental principles of successful dairying,—aiming at improved quality in cow, through wiser and more definite breeding, selection of good animals, and discarding the poor ones. He has figured to some purpose, having kept records of each cow for years.

I feel it an honor to be able to report on what I believe is the first work of this kind to be undertaken by the Department of Agriculture.

A MEMBER: Are all these tests on the same footing?

Mr. WHITLEY: Yes, nearly all the animals were on pasture this summer. One man fed a little grain, not very much.

A MEMBER: Did you figure out the average yield of milk from all the cows by the month?

Mr. WHITLEY: Yes. I have that. In June, 652; in July, 558; in August, 499; in September, 419; in October, 327.

A MEMBER: Did you figure out what that would be in four months per cow?

Mr. WHITLEY: No, I did not, you can easily figure that out.

The PRESIDENT: There is more difference in the breed of man than there is in cattle?

Mr. WHITLEY: There is a good deal in that.

A MEMBER: Do you think the same system could be adopted in our country as they have in Denmark. They increased some 47 pounds per cow in Denmark.

Mr. WHITLEY: I see no reason why it should not be done. These tests were not under Government control. They are co-operative Associations of the farmers. They banded together for just this work. To test individual cows and get rid of the poor ones.

A MEMBER: Suppose a certain number of farmers came to you and said, we want to organize the same system here that they have in Denmark. Do you think you could do it?

Mr. WHITLEY: I do not see any reason why it should not be done. It would result in the dropping out of all cows that are running their owners into debt.

A MEMBER: Don't you think the farmers are looking to the men in the Experimental Farms to do work for them and they don't want to do much? What do you say to that?

Mr. WHITLEY: I do not want to say the farmers are lazy.

Mr. EAGER: I think a system of that kind if carried out would do more good than anything else we could adopt.

Mr. WHITLEY: I think there is nothing needed more.

Mr. EAGER: If you have a good cow and a poor man to handle her she will not do her best and it is not the fault of the cow.

Mr. DERBYSHIRE: I am sure we are all greatly indebted to Mr. Whitley for the very practical address he has given us. There are tests made this year, and it shows that if we could get more men like this best man, we would have more than twice the money and it would be useful in this part of the country. It does seem a pity that a man will go along with an ordinary cow and an ordinary cow stable. I heard a farmer say this summer, "No use bothering with the cows; we are not getting anything for the

milk." I said "Your business is to feed more, get up earlier in the morning and do a little extra work and get more milk to the factory." (Applause).

THE BUILDING UP OF THE DAIRY HERD.

By J. H. Grisdale, Central Experimental Farm, Ottawa.

Mr. Whitley read before you this morning returns of the Cow Census taken in the neighboring Province of Quebec, and he dealt with the returns from the herd and from the individual cow, and I hope that much good may be done by what he has said. There is some need for progress along that line. Those of you who have taken any interest in the last decennial census will notice that the average Canadian cow gave us during the year 1900 something under 2,000 pounds of milk, that seems startling when you consider the sum for which you can sell 2,000 pounds of milk, and the cost of feeding the cow. You will notice by the returns that the best we can hope to do is about $20 per cow from 2,000 pounds of milk. Mr. Whitley's returns show a little better. I think we figured out this morning that each cow gave about 2,500 pounds in the five months. Suppose we carry that on a little further, and say the cow was milking 7 months. Now, if you notice the decrease in the rate of milk production during the five months, you will see that the average cow will not milk longer than 7 months. If they did milk the two months more it certainly would not make a total of over 3,000 pounds, and with the highest price obtainable last year before the slump in prices occurred, we could only hope to get about $30 from our dairy cow; while under conditions such as existed last year after the slump we would only have got $21 per cow. I think you will admit that is not enough to pay for the keep of the cow, without taking into consideration any profit for the farmer. Then take the returns for the Province of Ontario, and it seems to be over 3,000 pounds. Supposing it were 3,500 pounds, (and it is not by a good deal), we would only get about $25 per cow, and these values fall very far short of what it costs to keep a cow, giving the cost of shelter and pasture and hay and straw.

We have kept account of every item which is required of taking care of of our dairy cows on the Experimental Farm, and everything being considered at the present rate of wages, the cost of buildings and the cost of straw and hay and all kinds of feed, it will cost $35 on the very best basis you can put it You say that you are feeding the cow a lot of rubbish from the farm that you cannot consume in any other way. But why should we be so anxious to throw away these things that are cheap? That is where our profit is in the consumption of them to the greatest advantage. Admitting that $35 is the cost of keeping a cow, and that we are willing to keep her for $30, then you must say at once that every year we are losing in this country millions and millions of dollars because we are not keeping the right kind of cows. Mr. Whitley has shown you one herd that gave in five months something under 100 pounds of butter per cow, and another herd 85 pounds, and another herd 190 pounds. Now, if the cows that give 85 pounds of butter paid for their keep, then the man who had the cows that gave 190 pounds of butter made the difference in clear profit. Every pound we can made over and above the average returns of keep of the dairy cow is clear profit; therefore there should be a greater incentive to make

progress in this direction. It is not as if we had to divide the profit with the cow. We don't; we get it clear into our own pockets. If we give the cow so much food she will live on it and every bit we give her over that she gives to us in profit.

How Shall We Bring Our Herds up to This Standard?

Mr. Whitley mentioned the gentleman who had the herd giving 190 pounds, and he said he had been working on this herd for years, and amongst his cows were some very high-class grades. You cannot get a herd in a year, that will give you 190 pounds. You have to work it up slowly. But it can be done, and the first step for any a man to take is to select a good bull. I know you have heard that over and over again, and I want to repeat it. I do not believe there are 10 per cent. of the herds in this country to day headed by good bulls. What do you mean by a good bull? Somebody says a registered bull. We want a registered bull, because men have been breeding for the last thousand years, selecting their cows for their dairying qualities. In that way progress has been made, and cows that have been breeding for years and centuries along those lines are better; but do not get the idea that because an animal is pure-breed that therefore he is going to leave you good stock. I regret to say that we have among our pure breeds some of the scrubbiest scrubs in the country. Get a good pure-bred sire whose dam has been a good cow. Our breeders of pure-bred cattle are not sufficiently careful. I am not afraid to say it here before you, even if some of you are pure-bred breeders. I have seen breeders sell to farmers who are trustful and careless, bulls from cows that were not giving enough to pay for their board—bulls from cows that do not give 3,000 pounds of milk in the year, and yet the bull had a pedigree. I think we ought to do something to remove that blur from the escutcheon of our breeders of pure-bred cattle. Some of the breeders have already done something towards this end.

Then if we could get into the heads of our farmers the idea of the value of a pure bred sire, as we hope to be able to do from the figures we are going to present to you, and from the reports which will be issued, then the farmers will be ready to pay a little bit more for a first-class sire. This is the most important subject in our dairy industry to-day,—the use of a pure-bred sire from the very best families. We must start with the breeders, and then work into the farmers, and get the farmers to put a true value on a pure-bred sire.

After we have got the right strain of sire, and are using him in our herd, the next thing is to select our cows. How are we going to determine from what family we shall breed. True, you can estimate the amount of milk a cow is giving, and you can keep a record of it; but that is rather a slow process, and we are rather a quick living people, and want to get into the midst of the fight at once, and probably two or three words on the point of conformation might be of value there.

In the first place we want a cow of dairying conformation. I have here a diagram of a cow. I do not know whether she is a Jersey or a Ayrshire or a Holstein or what she is. I think one breed is just as good as any other; and sometimes amongst the scrubs you find a good one, but that is rare. If there is any function in the whole animal life that is more difficult than another it is the producing of milk, and therefore you should select a cow with a good strong constitution. We judge constitution by the heart, and you want room up and down and through. We do not want a deep narrow cow, or a shallow broad cow.

She must have lots of room for the heart and lungs, for these are the organs upon which the animal must depend for its life. Then we want lots of room for the digestive organs, without room in which the food may be digested we cannot hope to do much in the pail. The udder must be well developed. I like an udder that goes right up near to the root of the tail, and one that covers as much width as possible. I want the udder to touch all the body it possibly can, and to be of good quality so that when it is milked out it feels like an old rag. You don't want much beef on the dairy cow except when she has been dry for sometime; particularly we do not want any beef in the udder. When the cow is dry she should have just a little bit of an udder, not much bigger than your two fists. Some good cows that I have seen have such small udders when they are dry that you would never suspect that they were good cows, but the udder swells out to almost enormous proportions when the cow is in full milk. Then we want good teats. If there is anything provoking it is to sit down to milk a cow with teats the size of the end of your thumb, and that you have to pull with one finger and your thumb. Such cows should be disqualified from the show ring. We want the whole animal to be of a loose conformation. We don't want anything compact or solid, or any tendency to beefiness about the animal. I never yet saw a solid, compact cow that was really a good dairy cow. The bones should be rather wide apart; in fact you want the tendency to put her food in the form of milk rather than into flesh or fat.

The milk veins and wells are of great importance. The milk veins should be as long and as large as possible, not because there is a bit of milk goes through them, but when a man is milking a cow that is the part that keeps the machinery going, and we want these veins to be able to carry away the blood as rapidly as it has been used up. Particularly do we want the wells large, allowing the blood to get back into the body and then to the heart.

There is as much character in the face of a cow as there is in the face of any one of you. One can learn from looking at a man's face a great deal about that man, unless he is a hypocrite, and unless he has learned to disguise his face and character entirely; and you can judge of what a cow is from her head. We want a good clean head with a large mouth, with a strong jaw. A strong jaw and large mouth is probably one of the best indications you can get of a good dairy cow, provided the other parts are all right. We want a good bright eye; not a nervous eye, but an eye that indicating lots of brain power. She ought to have a nice soft skin and a nervous function. Then you want a good clean face and a bright forehead indicating lots of brain power. She ought to have a nice soft skin and a beautiful quality of hair. A cow that has milked really hard for nine months is not going to have just the nicest skin in the world, but we expect when she has been dry for a time that she will have these qualities very well marked. If you get a cow from a good family you can hope for something from her, because good dairy qualities are certainly inherent, and if the cow herself be not phenomenal she may leave you something that may be extra good, provided she is from the right family; and while I would not advise a man to buy a cow that is a small producer, and give a good figure for her, still if you consider the family from which she comes and her present qualities, you are perfectly safe in giving a good figure even if she be not herself a very good milker, because the strain counts for a very great deal. The man from whom you are buying may have been keeping records, as some of our breeders do.

You can improve our herd by getting the best sires, by selecting the best cows, and then when you have got them don't expect them to go to work and produce a whole lot of milk unless you feed them properly.

There is Nothing More Important Than Feed.

I am not afraid to say that, and I can take any one of these herds about which Mr Whitley gave us such interesting talks this morning, and by careful and proper feeding make that herd give at least 30 per cent. more the first year, and 10 per cent. more than that in the next year, just by feeding them, and that means profit. Five years ago in the city of New York, they took a herd of cows from a farm, a record of which had been kept during the previous year. That herd of cows produced $25 worth of milk. They were fed the very best way they could feed them, and cost $23.50. The Experimental Station bought that herd of cows and took it to the Experimental Farm, and during the next year it cost them $35 to feed the cows. They fed them generously, and that herd brought in $40 worth of milk, and they cost $34 to feed and that left a profit of $6 on account of the good feeding, whereas they were giving a loss of about $3.50, and that makes a total gain of nearly $10. Do not economise on the dairy cow. A cow in good condition in the spring is going to give you 100 per cent. better returns for the first two months than if she is in poor condition. I have seen herds of cows in this country that take the first two months on grass to recuperate from the way in which they had been treated in the winter.

When I went to Ottawa in 1899 I found there a herd of 22 or 23 grade cattle. Some two or three years previously tuberculosis had visited their pure-bred herd and cleaned it out. The stable was purified, and this grade herd brought down from a region where Ayrshires were plentiful. They had been there for a year, and had given something like 5,000 pounds of milk a year per cow. When I went there I looked over the herd and decided that the first thing to do was to find out what could be done with them. They had kept no records the previous year, except in a general way. We started to keep a daily record of the yield, and of the food fed to the cows, and during that year it cost us $37 each to feed them, and they gave us a return of $54.14 during the year. In 1900 we started to study each cow, We gave them all succulent food with a little bit of straw mixed with it, and a little clover hay and meal with the silage. We gave them chopped oats, peas, and barley mixed and some oil meal. These were mixed in different proportions for different cows, studying their requirements. It is quite possible to give a cow too much—no more than she will digest possibly, but more than she will pay for. If it costs you 12 cents a day to feed a cow and she is giving you 25 cents worth of milk there is a clear profit of 13 cents, and if by feeding 14 cents worth you receive 26 cents worth of milk, you have only raised the milk one cent, and the cost of your feed has increased by 2 cents. We managed to raise the yield from these same cows, so that in 1900 they gave us 6,455 pounds or an increase of 1,041 pounds of milk in a year. That seems like a remarkable increase for the same herd of cattle. The cows ranged from five to ten years old, just in their prime. The cost of feeding them was lowered $2, because we did not give them as much meal. The next year the herd was fed as cheaply as we could feed them and we were not able to raise the yield very materially, but we did bring it up to 6,769 pounds or an increase of over 300 pounds, which is very good considering the great leap they had taken the year before. I was astonished at these results, and I started to figure upon the possibility for the dairymen of this country.

I was so impressed with the matter that I laid it before the Director, and got him to permit me to issue forms for keeping the returns of dairy herds. I communicated with cheese-makers all over Canada from one end to the other, and got the names of their best dairymen, and laid these matters before them in the way of circular letters, and in that way induced a great many of them to keep records of their dairy cows, and a number of them sent us returns, and we were very much surprised at the smallness of their returns the first year, but the second year there was a most marked improvement. Some herds have gone up as high as 1,000 pounds per year. I thought the increase in our case was almost incredible, and other farmers were still more astonished at the way their herds improved. In the third year still further improvements were made. One man in the Province of Nova Scotia told me that in three years he had been able to double the produces from his cows. He didn't do that from the same herd, but by culling out the worst ones, and if one man was able to double his returns in that way why should not others. In my evidence before the Agricultural Commission last year I stated that one man named O. Price, doubled the returns, and another man increased it 1,000 pounds per cow and others 1,300 to 1,400. The very worst records were something between 500 and 600 per cow. The principal reason why we have not been making more progress has been that we have not been anxious about the matter. Our men were not very careful about milking, because they did not take the same interest in it that they are now taking since we commenced to weigh the milk. I have a little farm of my own, and my brother and I are partners; and our herdsman tells me he has to watch them like everything that they do not weigh too heavy to keep their cows from going down. When you get a man so anxious to keep his cows up to last week's record that he will almost tell a lie about it, there is a chance for progress. Farmers' sons and daughters will take more interest in the dairy cows if a record is kept of their daily yield. Dan Gray, who lives about 100 miles from here in the Ottawa Valley, has just as good a farm as this. Four years ago he was thinking of leaving home; you know how many farmers' sons leave home. This young man was in that position and he thought it was time he was quit. They had a 100 acre farm, and half of it was waste land. They had only been keeping about 13 dairy cows, and a few young stock and some pigs and horses. The average returns from the cows during the previous five years had been somewhere about $30, and this young man said to me, "If I take this farm over there are 13 cows and we only get about $30 a cow, that is the whole revenue, that is not $400. How am I going to keep the old gentleman and have something to buy supplies, and make any money for myself?" I discussed the matter with him, and advised as to what could be done. I advised him to keep a record of the cows, so that he would know which were the good cows. At the end of the year he got over $40—not quite $45—from each cow. This encouraged the young man, and he sold out his worst cows and bought in the best he could get in the district, because they were all willing to sell when he was willing to give $5 or $10 higher than the average price. How many of you farmers are willing to sell your cows because you are going to get $10 more? You should not do that kind of thing. If you want to sell a cow, sell the worst ones. This young man kept on improving the record of his cows, till he has now brought the record up to $70 a cow; $60 from the factory and $10 from the city. He sells his cream in Montreal. Now, if you leave out the $10 and say $60, that is a big jump from $35 to $60. He is now going into pure-bred cattle. He has one pure-bred Holstein, and I believe that

is the breed for this part of the country, because we want a breed that will give dairymen as large an amount as possible of milk of medium quality. We have Ayrshires, Guernseys, Shorthorns, and Canadians at our Experimental Farm, and we value our milk according to the percentage of butter fat. We take the three best cows out of each herd, and the three Canadians stood considerably above the other three.

A MEMBER: What do we understand by Canadians?

Prof. GRISDALE: A little bit of a black cow with a brown streak down her back. She is smaller than a Jersey, as wiry as it is possible to be. She lives in the wilds of Quebec or used to. She is handled as pure-bred, they say, by quite a number of breeders in Quebec. We introduced the breed into our stalls two years ago with the view of having some distinctly Canadian cows. Her ancestors were brought over here by the early emigrants in the 16th century, and have been roaming through Quebec ever since. She is rather small, but she will produce butter very economically. In 1903 she produced butter at a cost of 9 cents per pound for food, while the Guernseys were 10 cents and Ayrshires about the same, and Shorthorns about 13 cents a pound. We have no Holsteins in Ottawa, but we have down on the farm in Nova Scotia. She does not produce milk any cheaper than any of the other breeds, but it is of a little better quality. Our average Canadian cow this year produced $100 worth of product. Valuing the butter fat at 15 cents per pound and the skim milk at 15 cents a hundred, it costs us to feed a little over $40, leaving a clear profit of nearly $57, and I think that is a pretty good record for one little breed

Let me tell you what a man with a pure-bred herd in the district of Ottawa has been able to do. He has one of the best herds of Ayrshires in in the market to-day, if we should judge by the prize he took at the St. Louis Exposition. He has kpet a register of their records, and the best twenty of his herd are now giving considerably over 8,000 pounds of milk. If we can get bulls from cows of that description we can make more improvement in our herds. There is nothing like breeding the right way.

If any of you are sufficiently interested in this matter to keep a record of your cows, we should be delighted to furnish you with forms, and to get you a little spring balance for $1 that will enable you to weigh quickly and easily. You can stick the forms somewhere in your stall, and have the scale on a little arm projecting from the wall, it will not take you half a minute per cow to weigh it, and the whole herd of 20 cows will not take you 10 minutes night and morning in keeping a record. You will be so much more interested in your work, and you will know just exactly what every cow is doing.

A. C. Wells & Sons of British Columbia, gave me to understand that they have made wonderful progress since they took hold of this thing some years ago. On Vancouver Island there are a number of dairymen who are delighted with this thing, and who say they would not quit keeping records.

We furnish free forms for keeping food records, all you have to do is to fill in the name of the cow or the number, and then fill up the form as you go along. I hope some of you will take hold of this, and that at the next convention you will be able to give us your experience, and help to raise the standard of dairying in this country. Do not be discouraged because prices drop one year. They are going up next year.

The CHAIRMAN: I think we are indebted to Mr. Grisdale, of the Experimental Farm for the very complete address he has delivered. He has shown us that while some farmers are battling along and only sending a

small quantity of milk to the factory others are sending twice that quantity. We have this going on right in our midst, and we want you to raise up the standard and produce more milk per cow.

MANAGEMENT OF THE DAIRY HERD.

By Henry Glendinning, Manilla.

I am sure you have been very much interested in the address you have just heard from Mr. Grisdale. I will try and continue the talk along the line of the management and feeding of the dairy cow.

There are seasons of the year when the management of the dairy herd is reduced to a minimum. Especially is this true in June, when the cows are turned out to pasture with plenty of sweet, nutritious grass, and a running stream of pure water in the field. They are bathed in sunshine, have plenty of fresh air, and an opportunity of pawing the soil over their backs which rids them of vermin. Then, too, the whole body is washed occasionally with warm showers of rain that clean the old hair off and leave the skin in a healthy condition. Under these conditions there is very little labor required. But such favorable conditions do not last long,—about one month or six weeks in the year is all that we have.

The first difficulty which presents itself is how to deal with the flies which are such a nuisance. We have found a spray of crude petroleum the best because it is the cheapest. It is applied as a spray with a spray motor oil pump. One man works the handle and the other the hose. This treatment is found to be very effective.

The next difficulty is the shortage of the pastures. This should be met by having some soiling crop near the stables that can be cut and fed. Lucerne clover, mixed oats, and peas that have been sown at different dates make good soiling crops, but perhaps the cheapest and most convenient of all is corn silage grown the previous year, with the addition of a couple of pounds of bran.

In the autumn, when the weather becomes cold, the cows should be kept in the stable overnight. The winter care of the cows requires the greatest skill to get the best results from the animals from the amount of food consumed. June being the ideal month of the year for the production of milk, we should get as near those conditions as possible. Warm, comfortable, well-ventilated stables with plenty of light and a constant supply of pure water, with a daily application of curry comb and brush are necessary to keep the animals in the best of health. The hair should be clipped from the tails, hips, udders and along the abdomen. This will prevent straw and other refuse from sticking to the body and will make it easy for the milker to clean off before milking. The stable for the winter should be warm and comfortable, well lighted, the whole whitewashed, which will add very much to the light and sanitary condition.

The cows should be fed a proper ration. It should be bulky, palatable, succulent, and free from objectionable flavors that would affect the milk. It should contain the proper nutrients for the production of milk and it should be cheap. The following tables show the digestible nutrients of feeding stuffs per 100 lbs. concentrates:

—	Dry matter.	Ash.	Protein.	Carbo-Hydrates.	Fat.	Nutritive ratio.
Wheat	89.5	1.8	10.2	69.2	1.7	1:7.1
Barley	89.1	2.4	8.7	65.6	1.6	1:7.9
Rye	88.4	1.9	9.9	67.6	1.1	1:7.0
Corn	89.1	1.5	7.9	66 7	4.3	1:9.8
Peas	89.5	2.6	16.8	51.8	0.7	1:3.1
Oats	89.0	3.0	9.2	47.3	4.2	1:6.2
Buckwheat	87.4	2.0	7.7	49.2	1.8	1:6.7
Field Beans	85.5	3.1	23.0	50.2	1.4	1:2.3
Flax Seed	90.8	4.3	20.6	17.1	29.0	1:4.2
Sunflower	92.5	2.6	12.1	20.8	29.0	1:7.4
Wheat Bran	88.1	5.8	12.2	39.2	2.7	1:3.7
Wheat Shorts	82.2	4.6	12.2	50.0	3.8	1:4:8
Linseed Meal, O.P.	90.8	5.7	29.3	32.7	7.0	1:1.6
Cottonseed Meal	91.8	3.5	37.2	16.9	12.2	1:1.2
Grasses (green).						
Kentucky blue grass	34.9	2.8	3.0	19.8	.8	1:7.2
Orchard	27.0	2.0	1.5	11.4	.5	1:8.0
Red top	34.7	2.3	2.1	21.2	.6	1:10.0
Timothy	38.4	2.1	1.2	19.1	.6	1:17.1
Clovers (green)						
Red clover	29.2	2.1	2.9	14.8	1.7	1:5.6
Alsike clover	25.2	2.0	2.7	13.1	.6	1:5.3
Lucerne clover	28.2	2.7	3.9	12.7	.5	1:3.5
Hay.						
Red clover	84.7	6.6	6.8	35.8	1.7	1:5.8
Timothy	86.8	4.5	2.8	43.4	1.4	1:16.7
Straw.						
Oats	90.8	5.1	1.2	38.6	1.8	1:33.1
Peas	84.0	4.5	2.9	33.4	1.5	1:12.0
Silage.						
Corn	20.9	1.4	.9	11.3	.7	1:14.4
Roots.						
Sugar beets, feed	13.5	.9	1.1	10.2	.1	1:9.4
Turnips, Swedes	9.1	1.1	1.1	5.4	.1	1:5.1
Mangels	11.4	1.2	1.0	8.1	.2	1:8.5
Carrots	11.4	1.0	.8	7.8	.2	1:10.3
Parsnips	11.7	.7	1.6	11.2	.2	1:7.3
Potatoes	21.1	1.0	.9	16.3	.1	1:18.3
Rape	14.0	2.0	1.5	8.1	.2	1:5.7
Field pumpkins	19.1	.5	1.0	5.8	.3	1:6.5
Milk and its by-products.						
Milk, new	12.8	.7	3.6	4.9	3.7	1:3.8
Milk, separator	9.4	.7	2.9	5.2	.3	1:2.0
Buttermilk	9.9	.7	3.9	4.0	1.1	1:1.7
Whey	6.6	.4	.8	4.7	.3	1:6.8

The first column represents the dry matter that the food contains, the balance being water. All food stuffs contain water. The amount varies from eight to fifteen pounds per 100 pounds in such dry material as hay, straw and grain, and from 60 to 90 pounds in green grasses and roots. The animal makes use of the water to form a portion of the organs and fluids of the body, to aid in dissolving solid food and to carry it by means of the blood to the various parts of the body.

Definitions. *Ash* is what is left when the combustible part of feed stuff is burned away. It consists chiefly of lime, magnesia, potash, soda, iron, chlorine, and carbonic, sulphuric and phosphoric acids, and is used largely in making bones and in furnishing certain constituents of the digestive fluids.

Protein (or nitrogenous materials) is the name of a collection of compounds containing nitrogen. Protein furnishes the material for the lean flesh, blood, skin, muscles, tendons, nerves, hair, horns, wool, the casein of milk and the white of eggs, and is one of the most important constituents of feeding stuffs.

Digestible Carbohydrates (nitrogen—free extract) includes starch, sugar gums, and forms the largest part of all feeding stuffs, but especially of the grains. They are either converted by the animal into fat or burned in the body to produce heat and energy.

Fat (ether extract) is an impure product and includes, besides real fat or oils, such as linseed or cottonseed oils, wax and the green colouring matter of plants. The fat of the food is either stored up by the animal or burned as fuel to furnish heat and energy. The heat or energy which a pound of fat will supply through combustion is equal to what would come from the burning of $2\frac{1}{4}$ pounds to $2\frac{1}{3}$ pounds of sugar or starch.

The Nutritive Ratio is the relation that the protein bears to the digestible carbohydrates and fats combined. When feeding a full ration to animals (say for the production of milk) under summer conditions of temperature and not too much exercise being given, requires about 1 part of protein to $5\frac{1}{2}$ parts of the carbohydrates. But here the good judgment of the feeder is required. If the stables are cold, or only a maintenance ration being fed, the carbohydrates must be increased. It has been ascertained by experiments that at times it requires as much as 11 parts of the carbohydrates to 1 of protein. This will show the folly of feeding in cold quarters, or only enough feed to maintain the animal without making bodily gain or producing milk. That feed has been wasted or burned up in the body of the animal without any profit to the feeder, the same as wood or coal would be in an engine boiler to keep the water warm without producing steam.

You will observe by the tables that new milk contains about 13 pounds of solids, and that there is a higher percentage of protein in the solids than any other natural food represented on the chart. It therefore follows that the best feed stuffs are those that contain large quantities of protein such as the clovers, blue grass, lucerne, peas, oats, wheat bran, and shorts, linseed meal, and cottonseed meal, but the best feed of all is grass, the natural grasses and clovers. Grass is the natural food of the cow, being very palatable and succulent. She consumes a large amount of it and being succulent it is very easily digested. Better results are obtained from grass alone, if the cow has all she can consume, than other feed stuff or combination of feed stuffs. Although peas, oil, meal and bran contain a higher percentage of the milk producing elements than the grass, they lack the succulency, and the cow is compelled to put more energy into the digesting of the dry feed stuffs, and that energy is to be supplied from the food consumed. Therefore the cow has more net energy from the succulent grass to put into the production of milk than from the dry hay and more highly concentrated grains.

The importance of water before the cows at all times, will be better understood when we consider that 80 per cent. of the blood is water, 80 per cent. of the milk, and about 50 per cent. of the whole animal is water, and that a cow giving milk in the winter time will drink from 75 to 125 pounds, and in

the summer time will often drink more than 200 pounds of water. It is therefore necessary that cows should have access to water at all times if the best results are to be obtained. If water is before them all the time in the stable, there is no danger of them drinking too much any time to cause a chill, as is often the case when turned out of the stable once or twice a day. Salt should be given every day in the winter and in the summer. It should be within reach whenever desired.

The winter ration should be as near June grass as possible: it should be palatable, bulky and succulent, as corn silage or roots such as sugar beets or mangels fed with well cured lucerne or clover hay to supply milk. To this we should add some feed that contains a large amount of protein, such as wheat, bran, peas, meal, ground oats or oil cake to balance up the ration. The following will make a good ration:

Corn Silage	40 pounds.
Lucerne or Clover Hay	10 pounds.
Pea Meal	2 pounds.
Oil Meal	2 pounds.
Ground Oats	2 pounds.
Wheat Bran	2 pounds.

Much skill is required to feed successfully and economically. It is only that amount of food that is consumed and assimilated above the maintenance point from which we get any profit. Therefore it is necessary that we should feed high, but at the same time not overfeed, so as to cause the animal to break down.

A MEMBER: What kind of a silo do you favor?

MR. GRISDALE: If I had my choice I would have a wooden silo.

A MEMBER: Square or round?

Mr. GLENDINNING: We used to be able to build a wooden silo for half what you can build it to-day. I would say to any person going to put up one now, to put up a cement silo. It is the cheapest in the end and there is no experiment about it.

A MEMBER: How thick would you build the wall?

Mr. GLENDINNING: Just thick enough to hold it from bursting. I have seen a cement silo that was from 9 to 5 inches—9 inches at the bottom and finished 5 inches at the top and it was doing excellent work. However that is the lightest silo I have seen.

A MEMBER: What height was that silo?

Mr. GLENDINNING: 30 feet high and 11 feet in diameter. It had no iron bands on it. It was made of good Portland cement, and the man was not afraid to use a little cement. Do not be afraid to put an extra shovelful of cement.

A MEMBER: A good plan is to put barbed wire in the wall.

Mr. GLENDINNING: I think a better plan is to go to the blacksmith's shop and get a lot of old steel buggy tires and let these fit into the wall. You can buy them for almost nothing and they make an excellent band in the center of the wall.

MR. HOARD: Why don't you put a wooden hoop on your silo, and then your silo is forever solid, and it will never freeze because you will have a dead air space.

Mr. GLENDINNING: I am not afraid about freezing, you know how cold last winter was and I didn't see a fork full of silage frozen in my silo. The man in charge said it just depended on how you took it out, and he said that he took away the edges a little lower than the center. He says the silage

freezes only on the edge. I think a mistake is often made in the fall of the year when the farmer is very much hurried filling his silo or during the threshing, when the cows are allowed to run in the pasture field and they shrink in their milk production. The farmer doesn't know about it until he is told that they are not giving as much milk. I think the cows should be kept up at that time and not allowed to go down in their milk. If you allow a cow to go down you will find it is a difficult matter to raise her again to normal condition. I believe cows should be tied in their stalls very much earlier than they are.

A MEMBER: Will cows do as well on corn silage as on roots?

Mr. GLENDINNING: We have been feeding silage along with the roots and I am not prepared to say which will be the best, but I know that the corn silage is much cheaper.

MR. GRISDALE: Sugar beets are superior?

Mr. GLENDINNING: Did you ever try parsnips?

MR. GRISDALE: We have tried carrots and we have had good results from them.

Mr. GLENDINNING: We get better results from succulent foods than the analyses show; for instance roots do not show a very high percentage of nutrients, but we get better results from the fact that they are better digested than dry fodders.

A MEMBER: Did you ever try rape?

Mr. GLENDINNING: Not for cows, it has a tendency to taint the milk; but for lambs and pigs it has good results.

A MEMBER: Did you ever feed parsnips to cattle?

Mr. GLENDINNING: No; I have not. My farm is not an experimental station.

A MEMBER: Did you ever feed parsnips for the production of milk?

Mr. GLENDINNING: No, I never feed parsnips at all.

A MEMBER: How many tons of rape would you get to an acre?

Mr. GLENDINNING: I cannot say because we allow the pigs to run on the rape.

MR. GRISDALE: We have raised as high as 29 tons, but the average return would be about 15 tons.

A MEMBER: Will frost hurt corn?

Mr. GLENDINNING: If I had my choice I would certainly put the corn in before it was frozen provided it was matured enough; but if the weather conditions were not right, such as they were this last season, I let my corn stand until the early part of October. The leaves became perfectly dry and a certain amount of the sap was dried out of the stock. We had as nice silage as I ever saw, except that it did not possess as much corn as I would like. If we had put it in at the time it was nipped, that day or the next day, I think it would have had a great pond of water around the silo and it would have looked like a huge cider press and we would have had sour silage.

A MEMBER: Did you have any water on the corn that was frozen?

Mr. GLENDINNING: No; there was plenty of juice in the stalks, although the leaves were dry. I would put water on if it required it, but I do not think we need it very often.

A MEMBER: What kind of corn do you recommend?

Mr. GLENDINNING: I would grow the corn that would produce the best ears and ripen in the section in which I live. I think perhaps some person

here can tell that better than I can. In our section of the country very common kinds of corn to grow are White Cob and Yellow Dent, and sometimes we use Compton's Early. If these are put in at the same time Compton's Early will be ready to cut first.

A MEMBER: Do you think corn cut a little on the green side is best? I fill my silo on the 17th of September and fill again later on. Don't you think that would make sour silage?

Mr. GLENDINNING: No: I think the other way; that is provided they were both of the same maturity.

A MEMBER: Have you made any experiments as to the different length of cut of the corn?

Mr. GLENDINNING: We have cut what they call half-inch, but I find it is nearer three-quarters of an inch—sometimes an inch. I found when we cut it short we could get more in, it seems to pack in better, and I prefer it short.

Mr. GRISDALE: In every case where we cut it short the ensilage was much superior to where cut long. In one case we cut one inch and a half, and about half of it was fire-fanged. It keeps it better if you shred it, but I doubt if it would pay for more than the increased cost.

A MEMBER: Don't you find you have a more acidy ensilage with a short cut?

Mr. GRISDALE: No, except near the bottom of the silo.

A MEMBER: I have experimented, and I find that a short cut is always more acidy any place in the silo than a long cut, and I have reversed it from one year to the other.

ANOTHER MEMBER: Did you ever have any trouble from fire fang with a short cut.

Mr. GRISDALE: Not when it was properly put in. If it is not properly mixed you will have that difficulty.

Mr. GLENDINNING: For a number of years back we have been cutting it half-inch and we have had no trouble with it being sour or fire-fanged. If you have a lazy man, do not put him in the silo.

A MEMBER: Is a heavy man best?

Mr. GLENDINNING: No, get a man that will get around.

A MEMBER: Do you think it is better to have the corn cut with a common cutter or with a blower?

Mr. GLENDENNING: We use the blower. The blower knocks the corn off the cobs; that is the only difference.

A MEMBER: I have quit filling the silo altogether. I used to use the old flax machine, and there were complaints coming in as to the milk, and one time I had to buy some milk from another farmer, who hadn't anything to feed but ensilage, and I told my son to watch and see if there were any complaints, and we didn't receive any; so the next winter we filled our silo and hired this man to cut the corn with the blower, and we have never had any trouble since.

Mr. GLENDINNING: Perhaps your corn was on the green side.

A MEMBER: Taking one year with another, say for eight years, I had the same results, and I would not allow a man to cut my corn unless he had a blower.

A MEMBER: Don't you think it is a good thing to tramp the silo with a horse?

Mr. GLENDINNING: How will you get your horse out?

A MEMBER: Use a derrick.

Another Member: Don't you think there is considerable trouble because people do not give their cows enough corn?

Mr. Glendinning: I think that is one of the greatest troubles.

A Member: What about feeding oats with the corn?

Mr. Glendinning: Oats are about the proper thing if you are going to feed one grain alone, I think clover hay and oats are about right.

A Member: If you mix everything you grow and give it to the cow would that not be a good thing?

Mr. Glendinning: No, I do not think so.

A Member: What do you think about feeding roots in the spring?

Mr. Glendinning: I would like to feed roots or silage at any time in the year, it keeps the cow in a healthy condition.

The Chairman: I have never heard a better address than the one we have just listened to from Mr. Glendinning, and I am sure we are very much pleased with what he has said.

SANITATION OF THE DAIRY BARN.

By Hon. John Gould, Aurora, Ohio.

I am very glad to meet you this afternoon, and I can assure you I can in pretty good condition because I came on ice. (Mr. Gould had just been driven across the St. Lawrence River.)

I have taken the subject of the sanitation of dairy barns for this reason, that I have come to believe firmly and honestly that the great uplifting in dairying has got to come from patrons. (Applause.) I believe that when that patron will understand that a cheap thing is not the best thing, then he will realize as never before what good dairying is, and that a good barn is one of the greatest things in connection with good dairying. My friend said dairying was good in the middle of the summer. June is the best time, and in July it begins to go down, and then at the other end of the year you have to bring in reinforcements to get up on a level. Now, the idea of a good barn is to make the whole thing level and give this man on the farm 365 days of summer and make the cow a paying animal, ten months of the year instead of seven. (Applause.)

What is a Barn?

I was down in Georgia early in the winter, and a dairyman took me down to see his barn and herd of Jerseys. He was an up-to-date dairyman. He said, "I have got one of the most complete barns in Georgia," and I went out there and I didn't see anything lacking. It was a log barn without chinking with a lean-to around it, and two logs taken out on three sides and pegs driven in, and the cows standing on the outside of the barn putting their heads through where the logs should be and eating hay. That was his idea of a barn. He was making butter, and selling it for thirty-five cents a pound in Georgia. That barn would hardly do in Canada, but it was all right in Georgia.

Not long since I was in the Hon. Mr. Morton's barn in New York State. He has a $75,000 barn, but it was the other extreme. He has a stable wider than this hall, higher to the ceiling than this hall, with 60 cows freezing to death in it. It was perfectly sanitary, only too much so. I

want to see if I cannot get between these two. Get down to the common farmer, and make that common farmer the average farmer, and then that average farmer the way up-to-date farmer, and set him clean up to the sky. Now, I want this barn so cheap that any man can build it. We don't want a castle like Governor Morton's barn costing $75,000. The cost of it would eat up a man in Ohio.

What is a barn? It is so much enclosed out-of-doors. (Laughter.) What is out-of-doors? Pleasant sunshine, uniform temperature, dry ground, water in brooks, warm as dish water and succulent foods and pure air. That is June. Now if I put all four of these into the stable, sunshine, light, air, dryness and succulency, I have got summer there.

Whilst I stand up here, and say I admire a great many of your barns, and a great many of the barns in Ohio from the outside, I have very rarely seen one of these great barns that was in really fit condition in which to tie up a dairy cow and keep her tied up. Nearly every one of them are chilly and damp, dark and unventilated, and they smell clear up to heaven. A cow does better in summer than winter, because it has better sanitary conditions. Some men get away from nature and turn their cows out on a cold day to freeze and put them back in the barn to thaw out. (Laughter.)

I want this barn made with plenty of light. I want it so that the air can be controlled. I want to control nature just a little once in a while. When I was coming across on the ice this morning I would have liked to have warmed up that horse a little. I want the barn for the dairy cow to be made especially as a dairy stable and not part of the barn.

I want the barn that the cow stands in as "L" to the barn, and use the barn as a feed barrel, and have this stable go to the south as the "L" part with a straw barn over it, if you please. Have all the sunshine you can get in it every day in the winter. There are three great barns built in sight of my house, and every one is destitute of sunlight. There is no ventilation; it is as dark as Egypt, and the men wonder why their cows were not doing any good. I said, "Turn them out doors, and they will go to the woods and get warm." (Laughter.) I have great respect for cement and stone, and a lot of men are building stone barns and stone basements, but there was never so perfect a stable for a cow to stand in as wooden walls made on six-inch scantling tongued and grooved side, with tar paper on both sides. In that way you have a wall that is impervious to cold and controls the heat, and the only other thing we have to do is to get light into the stable. There is no microbe in the world can stand sunshine fifteen seconds except the political microbe. (Laughter.) I do not want the stable made too high, but I want the ceiling low enough so that I can control things in there. It has been demonstrated that each cow wants three feet square of glass, and put the windows as high as possible, so as to get the longest slant of sunshine in. We want the stable made so small that the cow can warm the air in which she stands. It has been found that a cow can warm a room containing 600 cubic feet and maintain the temperature—that is 16 feet long, 5 feet wide, and 9 feet high. If the walls are made so that the air will not get through, she will maintain the heat inside that space with the thermometer 20 degrees below zero; but she will smother before morning, and therefore you must have ventilation. A stable 32 feet wide is wide enough for two rows of cows and if you have 40 cows, you want your stable 60 feet long and 32 feet wide. After you have made these boxes 9 feet x 4 feet x 16 feet for each cow you have got to provide for ventilation. Did any of you this morning in the stables see about an inch of the ice frozen on the glass of the windows?

A Voice: Yes, lots of us.

Mr. Gould: I saw it on there. Why should stables at 45 degrees have ice frozen on the windows? If the weather turns warm you would see the water streaming on the walls. What happened? It was too warm, dry air is always warmer than damp air. That cow that stood there for 24 hours, threw off eight pounds of moisture into the air from her breath and the evaporation from her body, and the thirty cows would give off 275 pounds of water in the air of that stable. The moisture cannot get out, and there was a rain storm in there. How shall we get rid of that water? and give these cows warmth and dryness and fresh air? These cows would consume all the air in the 600 cubic feet in 24 hours, and would smother at the end of that time; so I want in some way to take that 275 pounds of moisture out of the air and carry it off, and give me pure dry air in the stable, and how are we going to do that? First make the stable as tight as a drum. There is no use talking about ventilating a stable and making it sanitary if there is a crack here and there that you can throw a cat through. Did any of you ever see a chimney in a house where there was a fire-place at the bottom of the floor where that chimney was drawing all the time. The higher that chimney the more it draws.

Now I want ventilators in the stable, and I want the ventilators at least 40 feet long and I want them carried above the ridge of the barn so they will have a pull on them all the time, and I want the air shafts a foot square inside, and one air shaft for each ten cows. I would like four ventilators for forty cows, each ventilator a foot square. Professor King, of Washington, who is the highest authority on farm physics that I know of, made a little experiment for me, and he found that in 24 hours each one of six flues in my stable carried out 30,000 cubic feet of air, a pound of air a foot square, six miles long. In other words, it changed the air in that stable seven times every 24 hours, and there was no frost on the windows there, and when you go into that stable you will find the air is dry, and that every smell and odor has gone out before it has had time to settle on anything, and the warmth that should be in the stable is all there keeping the stable in a uniform temperature. Last year when the temperature was ranging all the way from 26 below zero to 32, the temperature in this stable never changed five degrees. We succeeded in holding it at 48 degrees all winter long. Some of you may say that is not quite warm enough, but it is a good deal more comfortable than a stable with only one door, and that one off its hinges. Some of you may say, how is the air going to get into the stable? Well, I puzzled my brains with that for quite a while. I never saw a room yet but that a stove would draw in it, so we cut four holes in the stable in the opposite four corners, and we went to the tinsmiths and got galvanized iron pipe five inches in diameter, made out of stove pipe, with an elbow, and one length long enough to go out and the rest of the pipe runs up on the inside of the stable within a foot of the walls, and we had half as much entrance air as we had exit air. The air comes in at the top of the room where it warms, and in that way it equalizes the temperature, and then passing out through these ventilators at the bottom. I manage to keep a uniform temperature in that stable all the time, pure air of a uniform temperature, and the cow enjoying it.

Last night on the train I had for a companion a famous architect, and he told me how a barn should be built, and I said to him that one of the wisest things ever said in the States was said by Professor Roberts, of Cornell, who said that architects know nothing about building barns.

This architect said ventilators wanted to start about five feet from the floor and go up and then follow a rafter and then go into the barn cupola, and I asked him if he would build a barn that way, and he said he didn't know any other way, and I told him he had better go and learn his trade over. If you want a ventilator to draw well run it straight up and do not put any curves or dips in it, and don't let any man tell you that the middle of the barn is the proper place to have the ventilator. I would rather have four ventilators than one. The other morning the thermometer dropped four below zero at my house, and I looked out the window and saw that at the shafts of my ventilators there was a great cloud of frost swinging around in the air and I said to myself, when I go in that barn I will find it dry because the moisture is all being taken out by those ventilators. I have got a warm barn with uniform temperature. I have got a light barn well ventilated.

A MEMBER: How near the floor would you have these ventilators go?

Mr. GOULD: Clear to the floor and then have a little side door that you open and shut so that you can control them. The door should be the size of the interior dimensions of the shaft.

A MEMBER: Supposing you had one at each corner and the barn is facing one end at the north.

Mr. GOULD: Put a damper in, and shut that one off when you want to. These ventilators cost me $4, and I saved the money the first winter in the shrinkage of milk. There is never any change in the yield of milk in my cows no matter whether the weather is stormy or not. The ceiling of the barn is nine feet high.

If there is anything on earth that smells to heaven it is the average stable floor; and the cow has to sleep on that floor and breathe on that floor, and is milked on that floor; and I want to say that floor should be kept tidy and clean and dry and it never can be kept tidy with a plank floor. I am thoroughly in favor of a cement floor in a cow stable. Some men have said to me that a stone floor is too cold, but I put plenty of bedding on it, and that gets over that difficulty. Then, some one said it is slippery. Well, before the cement is dry I take a rake and rake it all up and make it as rough as a hedge fence, and then the cows will not slip.

A MEMBER: The last time you told us that an earth floor was the kind of floor for a stable. What do you think about it now?

Mr. GOULD: I still believe it, but at the same time there is a difference in clay. (Laughter.) If I could have a blue grass sod, it makes an ideal floor; but at the same time it must have lots of bedding on it, or it is a dirty floor. But I think an ideal floor for a cow to stand on is cement. You can keep a stable floor dry if you use plenty of absorbents. I have been rash enough to say a man should use land plaster in his stable, but Professor Ketch has said land plaster has no power to fix ammonia at all, and I want to beg the pardon of this fellow I have been recommending to pay $5 a ton for land plaster. I said that nothing would make a stable so sanitary as good road dust, and the scientific man said that road dust would take up ammonia but would fix it, and the plant life never could get the ammonia. So that we must put on lots of bedding, and not allow the bedding to remain under the cow until it is all matted down, and when we stir it up you find mould in it; keep it working to the gutter and put on fresh. I have never found so good an absorbent as good fresh horse manure scattered behind the cows each morning with road dust. It holds the ammonia, takes up all the liquids and keeps the cow reasonably clean.

If a man is going to have a sanitary stable he must put in hard work, and I would recommend a manure carrier, and to clean out the stable twice a day.

Mr. GRISDALE: I cannot agree with your proposition about horse manure unless you have straw.

Mr. GOULD: I want it with straw, and not over two and a half hours old. I want it to ferment on the land and not in the stable. Put it out on the land the same day you take it out of the stable and let it wash through the ground instead of letting it go to China. As I go over the country and see the way the farmers take care of the manure, I do not wonder why the Chinamen are the color they are.

A MEMBER: Do you approve putting the manure out upon the snow when it is two feet deep?

Mr. GOULD: Did you ever know any body that did it that regretted it?

A MEMBER: Yes.

Mr. GOULD: Did you know that he was right about it?

A MEMBER: I will tell you my experience. I took ten acres of land and drew the manure right out of the stable and spread it in the spring and I had another ten acres that I drew the manure on in the spring, and I planted it so that I could just see the line where I put the fresh manure, and I sowed corn and the fresh manure was away ahead, and I came to the conclusion that the manure put out in the winter washed away.

Mr. GOULD: I can bring you plenty of people who will say the other way.

ANOTHER MEMBER: It works better with us putting it out as fast as you make it.

FIRST MEMBER: You take these rains that come in the winter and you will notice the creeks running foul with the liquid.

Mr. GOULD: Yes, but the scientist will tell you there is no fertility in it, it is just color.

A MEMBER: That color that runs in the creeks will kill grass.

Mr. GOULD: Tie the cow up in a stable, and do not tie her to a rigid stanchion, but with a good loose tie, so that she can take a little bit of comfort to herself and let her stay there all winter. I have always noticed that when a man turns his cows out in the morning to take exercise, that they do not take much exercise, and they always give less milk if they are allowed to stay out any time. I have come to believe that an acre of ensilage is worth four acres of the best grass any day in the year to make milk.

A MEMBER: What do you think about bran and shorts?

Mr. GOULD: Remember that will cost you 5 cents, and the ensilage will only cost you one cent. I have found out that feeding ensilage in the summer is the most profitable thing to keep up and maintain the flow of milk. I would grow oats and peas, but the trouble is you have to cut that on Sunday morning before starting to church, and the ensilage is right ready to be fed. Make a small silo for the summer where you can feed off two or three inches a day, and you will have good silage, the second and third year. I built my barn for $400, and borrowed the money to do it with, and it has paid me many, many times over.

A MEMBER: Can you build one for that now?

Mr. GOULD: No.

A MEMBER: Have you only single windows?

Mr. Gould: Only single windows; but if it is a very cold climate I think you might have double windows or else put shades on, and put them down at night and put them up in the day time, and you would practically have the same results as with double windows.

A Member: How high above the roof do you have these ventilators?

Mr. Gould: From the floor up and put a head of some kind over it so that the snow or rain won't get down, as long as you have it above the ridge of the roof it is all right.

A Member: What is your experience with alfalfa?

Mr. Gould: It does not grow very well with me. Red Clover does the best, but I am going to try alfalfa, and I believe if we can get it to grow it will be a great boon to us.

A Member: How high is the corner post of your barn?

Mr. Gould: I think 16 feet.

A Member: Have you had any experience with clover ensilage?

Mr. Gould: It is all right if you put it up on a rainy day; the harder it rains the better the clover will come out. Some think it should be cut just when it comes to bloom and others think after it is pretty well in bloom, and to use a little water. Unless there is a large amount of water put in it there is so much nitrogen in it that it takes up the moisture.

A CIVIC WELCOME.

Mayor Geash extended a hearty welcome to the Convention, and Mayor-elect Stewart also spoke warm words of welcome on behalf of the citizens.

Mr. J. R. Dargavel, Vice-President of the Association, made the following reply: I wish to thank the Mayor and the Mayor-elect for the very cordial and eloquent welcome they have given to the members of the Association here to-night. I can assure you all that we appreciate the words that you have spoken. Sometimes we find our work a little bit discouraging, and it is not appreciated to the extent that we would like, but when we find men speaking so encouragingly as they have to-night we appreciate it all the more. Perhaps there are a few here who do not understand the object of this Association in its entirety. I might briefly state that it was organized a good many years ago to further the interests of dairying. At that time this industry, which has become such an important one, did not amount to very much. Our Association was formed in 1897, and as late as 1890 the exports from this country of cheese amounted to only $9,000,000, and last year we exported over $20,000,000 worth. In 1903, which was the banner year, we exported somewhere about $25,000,000 worth of cheese and about $7,000,000 worth of butter. We think we have contributed as an Association largely towards this increase. We have educated, not only the makers of cheese, but we have educated the farmers and the dairymen, from the man behind the cow up to the time the cheese was put on board and ready for export. We have been able to make our influnce felt in the transportation question, and we now get cold storage furnished to us and this has assumed considerable magnitude, and we are in hopes that we can increase it very much and thereby add to the value of our products.

A few years ago this Association had only two or three instructors in the field, and as late as three years ago we had only some seven or eight instructors. During the past season we have had 25 men giving their whole time and attention to the instruction of cheese makers and farmers as to

how to care for their milk bringing it to the factories. These same insructors inspect the factories and make suggestions as to improvements, and make their influence felt from the beginning of the production of the milk until the finished products are placed on the market. We cannot do very much until we have the co-operation of every influential dairyman of this country. Every dairyman can become a member of this Association for the small sum of $1. The membership gives you all the rights and privileges, and each member receives a copy of the annual report. We hope to make our influence felt more and more as the years go by, and every member has a chance to select the directors who shall serve on the board. The board as now constituted has held office for some time and they are always ready and willing to step down and out whenever better men can be procured. I can assure you of one thing, that whatever amount of popularity they may have they have given their best to the cause. While I have been connected with this Association for the past ten years I have never seen a body of men more anxious and willing to do all they can to further their interests of the business. Our work has been appreciated, and we have been commended time and again by the Hon. Mr. Dryden on the amount of work we have been doing in Eastern Ontario. There is another institution of the kind in the western part of the Province, and Mr. Dryden assures us that we have done far greater work than the Association in the west. At the present time they have only some five or six instructors, and we have twenty-five.

TUBERCULOSIS.

By Dr. Moore, Ottawa.

It is very soldom that it is my privilege to stand before an audience so largely composed of men, and I truly appreciate the privilege. It has been said that your work is not appreciated as it should be, but I am perfectly satisfied that every individual in the old country where your product is sold, when he puts a piece of your excellent cheese in his mouth, he thanks the Association for what it has done in making the quality of this article so perfect.

I am to speak to you to-night on tuberculosis or consumption. On investigation, it was found that in the Dominion of Canada, there were more than 40,000 men, women, and children suffering continuously from consumption. It was found that of these 40,000, fully more than 8,000 persons perished every year, a vast majority of them cut off prematurely by this terrible plague. It was found that the disease was maintained by the fact that there were more than 8,000 persons drafted into the army every year, and it was found that consumption was beginning to threaten the industries of this country, and it was beginning to attack the dairy herds of different parts of Ontario, and we should be thankful that it is making comparatively little progress in this direction. It was under these conditions that Lord Minto, the excellent Governor-General who has so recently taken his departure, organized the Association which I represent.

The object of this Association is to gather together all the information that can be found relating to the most recent best methods of treating and disposing of consumption, and at the same time put these technical and

scientific results into the hands of the common people by means of lectures and literature. To instruct the people in the best methods by which they may defend themselves against the encroachments of this insiduous disease. Lectures have been delivered in almost every town of the Dominion. Last year we distributed more than 600,000 pages of pamphlet. We have completely covered the three Maritime Provinces during this year, and the year before we covered several counties in Ontario.

As to how it comes we are especially interested in your work. I may say that in the year 1901, Dr. Koch, the great German, who discovered the tuberculosis bacillus, made a pronouncement that took the convention by surprise. He said that the bovine bacillus and the human bacillus were two different species, and consequently there was little danger of the disease being passed from man to animals, and from animals to man. The most learned and scientific men of Christendom were there assembled; his name carried so much weight that very few were found to offer a different opinion. Dr. McFadyean, the great British Veterinary Surgeon, had the courage to stand up and defend the old proposition that there was positively danger to human life from the transference of the bovine bacillus into the human frame.

Immediately after the dissolution of the congress His Majesty, King Edward VII, appointed a Royal Commission of five gentlemen, all of whom are of the highest scientific attainments in Great Britain, Sir Michael Foster, German Sims Woodhead, Sidney Barris Cox Martin, John McFadyean, and Rupert William Boyce. These gentlemen have pursued their investigation for nearly two years, and early last summer, they sent in an interim report, giving the substance of the conclusion to which they had come. The question they were called to answer and the results which they represented are as follows:

1. Whether the disease in animals and man is one and the same.
2. Whether animals and man can be reciprocally infected with it.
3. Under what conditions, if at all, the transmission of the disease from animals to man takes place, and what are the circumstances favorable or unfavourable to such transmission.

The report was as follows: "We have very carefully compared the disease set up in the bovine animal by material of human origin with that set up in the bovine animal by material of bovine origin, and so far as we have found the one, both in its broad general features and in its finer histological details, to be identical with the other. We have so far failed to discover any character by which we could distinguish the one from the other, and our records contain accounts of the post-mortem examinations of bovine animals infected with tuberculosis material of human origin, which might be used as typical descriptions of ordinary bovine tuberculosis."

The findings of this great Royal Commission are sustained by the result attained by Dr. Salmon, who stands at the head of the great Live Stock industry of the United States. The same question was investigated by a gentleman connected with the Wm. Phipps Institution in the city of Philadelphia.

In the beginning of this campaign, there was necessary alarm created, and I have no doubt, very serious loss was inflicted to dairymen by the slaughter of animals. Senator Edwards, who is a specialist in this line, informed me that there is no need of drastic measures in order to get rid of the disease.

Some of you will remember the frightful ravages smallpox used to make in this country. Now, in the Province of Ontario, in one year, there were only eight persons died from that disease, and yet, if it were reported smallpox came into your city here to-night, there would be a perfect panic created, and everybody would be aroused to see that the law was enforced. And do you not think it is high time that we should protect our families against consumption, when we remember that close upon 3,000 died of consumption last year in the Province of Ontario. We should endeavour to shake ourselves free of this terrible plague, and put ourselves earnestly to take measures to prevent the spread of this disase.

The CHAIRMAN: I now have very great pleasure in introducing to this audience, Prof. Robertson, and I am sure there is no name that would come before a Canadian audience that would be better received. No man has done as much to put dairying before the people of this country and before the mother country. We feel proud of the work he has done, and although we are going to lose him as our Dairy Commissioner, we are delighted that we are not going to lose him as a Canadian, and that his work is going to continue in this Dominion, and we hope to have his co-operation in the future as we have done in the past. (Applause.)

AGRICULTURE AND EDUCATION.

By J. W. ROBERTSON, ST. ANNE DE BELLEVUE, QUE.

While I have left the service of the Government since last Saturday, I have not left the service of the people of Canada, and I hope not to, until I am finally laid away for my long rest. (Applause.) In all my public labors in this Province and in all other parts of the Dominion, I have had the hearty co-operation of the leading men. It seems the custom in our land to pick out a name and praise it as being typical of some good movement, and I have happily been the wearer of a name that has been counted for labor in this country, and I have relinquished my public labors without any regret, and I believe that the man who follows me will receive the same appreciation that I have been given.

The history of this Association is the history of the progress in Dairying in Eastern Ontario. Very worthy citizens have given all their time and attention to advancing this Association, and I think they are honored in having their names identified with its progress. I am glad to welcome here to-night my old friend John Gould, from Ohio, and you will be glad to know that the latest news from our very well beloved friend ex-Governor Hoard was most hopeful.

There are not less than 180,000 farmers in this Province, each of whom might be helped to some extent by the work of this body. I believe a man could get some hundred dollars worth out of this Association if he would take the trouble to put into practico one-tenth of what is said at these meetings.

In reading over the reports I find that some men have said ten or fifteen years ago just what should be said now, so that these reports are valuable documents. Considering the beggarly allowance the Ontario Government has been giving you, you are doing remarkable work. I am no longer a Government official and I can speak my mind as I did not used to.

The milk cows in this Province are valued at $32,000,000, and if half of them had been sold to the butcher the other half would have left more money to the country, because there is no profit in boarding a cow that eats more than she leaves behind her. If a cow lives with a farmer and does not pay her board, he is not making much profit. There is no use in milking a cow that gives less than a gallon of milk, and that is dry six or seven months in the year. This cow yielded thirty million dollars worth of stuff at the market value. The value of cheese and butter was fifteen million dollars and the value of the milk from the cows that did not go to the factory was over twenty million in the same year. So that you see this factory business of ours was only $15,000,000 that year against $20,000,000 for the milk that went elsewhere. I get tired of the cheese-maker who thinks that all that is worth discussing is whether to heat the milk up to 94 degrees or 95 degrees, or to string the acid out so far. He is only in the infancy of his business. It is more important to get more milk from the cow than it is to get a cent more a pound from the cheese.

In 1886 I went to the Guelph College and began to help the dairying interest of this Province in a public capacity. It only seems two years since I went there a raw young boy from the cheese factory and from feeding calves, and with hardly any scholastic lore behind me. The whole export of food stuff from the Dominion at that time was valued at less than $40,000,000 per annum. Since then I have watched the growth of nearly all these food products, and of the butter and cheese, and eggs, and poultry, up to June, 1904, the last year of which we have records, and the exports of these same things were worth more than $100,000,000. I think that is pretty good growth for our people to make in that comparatively brief span.

What agencies have been at work? Just two. Not two individuals, but two large agencies, those of education and those of organization. Those two things have multiplied our prosperity during those eighteen years. I do not know that we can do much more for the cheese makers than has been done, that is in the way of giving him information as to how to handle milk and cure cheese. I think we have got near to the end of our knowledge of that part of the business, and the manipulation of milk, and we must seek for some other place to apply the fruits of education and the power of organization.

Now, I believe it is possible to have the cheese factories improved by putting into practice what we know, rather than in finding out new things or training up better men. We need education for several reasons; because we make progress in life only as we continue our own education. Somehow, in this country the opinion has got abroad that education is something got out of a book or something got at school, and if we had nothing but these two ways of education in this Province then the Lord have mercy on us! Books and schools are not bad things, but they provide an infinitesimal measure of any man's education. Education is a series of experience only and always, never anything else. You cannot stick education on a man like sticking plaster, and you cannot label him like a bottle in a drug store. You cannot give him a piece of parchment, and say he is educated. And unless the man keeps on being educated all through his life then dry rot begins, and the race goes back. These experiences should lead up to ability—ability for something good, ability to recognize the good things in this life, ability to recognize the main purpose—and let the little insignificant details take care of themselves for a while. What are the main things in this dairy business? Just the same

as in the school house exactly. Progress and intelligence, ability to understand things, and see things, and then progress in personal power. Ability to do things in the factory, on the farm or in the school house, and then progress in desire, and capacity to work with others for the common good of the dairymen. What is the opposite of intelligence? Ignorance. We were all as boys ignorant. To be intelligent and to be able, and then to be selfish, is the most contemptible thing that comes within the range of human knowledge. Intelligence and ability and selfishness rolled up in the cow stable, the cheese factory or the board of trade, it does not matter which, and education that does not lead out of that state, is the worst thing we can have. In this Province you have made some progress in getting co-operation by having the factories grouped into syndicates, and you had last year thirty-seven dairy instructors, and I can fancy the look of amazement that would have come over the Dairymen's Convention if I, in 1886, should have said we ought to have thirty-seven instructors. You have twenty-five of them in Eastern Ontario; because you deserved them most. Why have you twenty-five of the thirty-seven? Because you have been growing out of comparative ignorance towards more intelligence, more understanding of the nature of your difficulties, and growing into a better comprehension of how to improve them. I can remember when one factory would not help the other because they wanted to sell their cheese for a quarter of a cent a pound more.

My friend, Mr. Stewart, remembers he was chairman of the school board when manual training was started in this Province, and in this town, by Sir Wm. Macdonald's money. Professor Janes, of Harvard University, says manual training was the most colossal improvement that ever came into the schools of America. (Applause.) And why? Not because the boys make things; but because the boys learn to work together, and look on each other's work, and help each other's work, and become co-operative instead of little selfish imps who are trying to get ahead of their fellows, and crow over it. We have a lot of that kind of thing in our schools that should be ripped clean out because it is bad for us. You do not make a boy better by scolding him, but if you can find anything to praise him about it will help that boy. One of the first things I did after being appointed by the Government in 1886 was to go to Denmark, and I never lost the love I had for that country, nor the respect I had for that people in regard to dairy matters. Take the three items of bacon, butter, and eggs which the people of Denmark send to England. How much do they expect they would get if they got the same price that other people get when they send them to England. England imports a lot of butter from Canada, bacon from Canada, and butter from France and other countries. Now, if the Danes get at the rate that these other people get for their stuff, how much less do you think they would get than they are getting? They receive $8,500,000 a year more for these three things than they would get if they took the price other countries get from England. They get that as premium for their excellence, and a premium for their ability. No wonder the country is prosperous. That started in the school house, and then went through the factory, and still Denmark is making its schools better, and in that country over three thousand boys are going to practical schools, where they are taught to farm well, and we have only about 220 pupils at Guelph.

I was at a dairy farm in this Province less than two months ago. I had been there in 1894, and I had not seen that farm till this autumn. In 1894 that farm of 110 acres had a total revenue of $800. It is sixty miles

from market, and only ordinary good land, and was employing one man part of the time only. In 1903 the revenue from that dairy farm was $4,486 in cash. (Applause.) After paying for all labor, and all expenses there was a margin of $1,700 for clear profit, and this year the farm showed a profit of over $2,000 over all expenses, and I believe that can be done all over this Province. That was done solely by education and organization. If you could try that all over this Province you would have a different sort of population, different sort of prospects, and different sort of schools.

A Member: Where is that farm situated?

Prof. Robertson: Sixty miles this side of Toronto on the C. P. R. Two miles and a half from the railway. The man sells poultry, cream and bacon, and a little butter, and occasionally two horses. He had 90 bushels of grain to the acre last year, and this year a mixture of oats and barley and wheat, and peas and roots, and plows under clover, and gets lots of moisture in the soil, and the man along side grows 40 bushels. His cows gives lots of milk, and he sends the cream to Toronto, and gets a $1 a gallon. He keeps Yorkshire pigs, and has a cement piggery.

Did you ever happen to go into a dissecting room, and examine a man's brain after he was dead? I have fingered the brain over. It is not the weight of brain that counts; otherwise a real big ox would stand more show than a small-sized man; but on some farms the ox's brain has more to do with the management than the man has. It has its own way oftener. It gets what it wants oftener; it gets its feed, and comfort at the man's expense most of the time. It is not the size of the brain that counts, it is the experience that the man has had to change his brain, and the doctor will tell you that the brain is not the same when the man has lots of experience. Did you ever see an old apple tree in an orchard that had had lots of big crops for years, and if you go along, and examine, you will see that it is full of scars where the fruit has come from. It is marked all over by experience, and it is not like the smooth skin of the big forest tree that has stood there, and done nothing except grow wood. How many of you have the experience of managing a cow that gives you 8,000 pounds of milk a year? How many of you have grown clover in between you grain crops, and put in corn every third year to keep the farm clean? That is what I mean about brain, not so much the gray matter but the experience that you have had, and that you benefit by, and you will get that kind of a brain only by training the boy when he is young. (Applause.) It is not that our boys have not good heads, it is that they have not good training.

I want to say a good word to you about the boys and girls in the Royal Schools, 300,000 strong, marching to the rural schools of Ontario. Supposing you start for a creamery with 100 lbs. of milk, and 45 lbs. leak out on the way, and only 55 lbs. get there, could you carry on business like that, if out of every 100 lbs. that starts for the creamery 45 lbs. leaks out. And yet in this Province 45 pupils fall out of the way, and 55 go to school. Can you carry on business in your schools like that, and that is the business you are carrying on in this Province. Supposing you have a good school, what does it count for if 45 children out of 100 do not go there? The school house counts for brains and hands and hearts, and it will count for dollars and by and by; therefore, the school house now should influence you more than the cow stable. Do you think it is creditable if the boys and girls of this Eastern Ontario go to the worst-looking buildings in the locality to be trained there? One-half of the schools in Western Ontario are the ugliest buildings in the locality where they stand. If I could earn five times the salary I was getting, and it was a satisfactory one, do you

suppose that I would try and lay that by at the expense of my little girl's training for her life? Do you suppose I would want to have a nice, well-cushioned chair for myself at my desk, and have a nice carpet for my floor, and have everything for my pleasure, and my little girl would have to stay from nine in the morning till four in the afternoon in a bare room with a dirty floor, and walls that are untidy, and the grounds that are not at all attractive? What would you call me if I did that for my child? I would call myself one of those men who was ignorant and helpless, and selfish down to the very heels. (Applause). Many of you have good buildings for your homes, and nice stables for your cattle, and why not put up better schools for the boys and girls so that they can make this Province what it ought to be. I built one school for the boys and girls of a rural district, and got seven little schools shut up. These little children came to school in seven big vans, and came with dry feet, and came every day —97 out of 100. They have a cooking room where the girls learn to cook and to sew, and manual training where the boys learn to think and draw and do things with their hands. They have a school garden where every boy has his plot of ground, and grows corn, potatoes, flowers, and vegetables. Less than seven months ago I had a dinner in the school cooked by the ninth grade of girls, cooked from the stuff grown in their own plots, and it was the best meal I ever got. Then we went up stairs to the library, and had music from the same girls who had done the cooking.

A MEMBER: I suppose they could milk a cow too?

Prof. ROBERTSON: Yes. They assessed themselves 100 per cent. more that year than they need to have done, because I promised to pay all the bills that were extra. Why should not you have schools like that all over this country, and have better boys and girls and more progress.

I will tell you about another school which is going two months in one of the poorest agricultural districts in Canada. The attendance after the school was going two months was 169 per cent. more than before, and if you had seen those boys and girls marching up to the big hall to the top of the school and singing patriotic songs, you would not believe these were the same boys and girls. And if I know anything about it we will have a hundred schools like that inside of five years, and they will multiply continually, and you have plenty of money to do it with. Sir William MacDonald's money does it now, and I do not have to press him for it; there is no grudging about the money he gives. (Applause.) He gave Brockville manual training, but any help Brockville had is but a means toward the end. There are now 2,000 boys in this Dominion getting manual training in the schools, and that all grew out of this one that he founded. He gave $200,000 to start these consolidated schools, and that is not all spent yet; and then he put $175,000 up at Guelph as a present to the people of this Province to train teachers for your schools, and I have met 40 teachers this last month who have been there for three months, and I am getting letters continually, saying they were never so well served in all their experience. Out of another fund that he gave we have bought twenty-five school gardens, and I have five men going around teaching them how to run school gardens.

We are going to start a school down in St. Anne de Bellevue, and we will have a place there as well equipped and better than the whole of the Agricultural College at Guelph, and you will only be a few hours run from that place, and we will have excursions there from Eastern Ontario as well as Quebec. I do not know how much it will cost Sir William MacDonald, but I will just whisper this, that Guelph is a big place. It is said to be

the best place on this continent, and Sir William MacDonald has said to me that we are to have three farms as an illustration part, "and as regards the College part, I want you to make it just a little bit better in every respect than the whole of the College at Guelph," and he has offered to put up enough money to endow this College for all time. (Great applause.)

The increased revenue from bacon, beef and cheese in this Province in six years was $34,000,000, and the whole of the cost of rural schools for the year was $3,000,000, and do you suppose the people cannot afford better schools when these three things give them $34,000,000. How much do you suppose the farm buildings of this Province were improved in these years? $42,000,000 in these years spent on farm buildings. If you will put just one dollar in a school house against $28 in a farm, it would build one hundred school houses of the very best sort of consolidated schools to take care of three hundred children apiece.

Did you know how much the live stock of this Province is worth more than it was seven years ago? $60,000,000. And the boys and girls are not worth ten cents more! They do not get as good a chance as you and I going to school. They have more subjects to study and less training. They have more things to remember and write about and less good habits generated and cultivated. They have more selfish aspirations to be at the top of the class and come out ahead and less co-operation. If we cannot give them proper education, I would say let us make the children work, and if we cannot make them work I would say chuck the children. If a man cannot afford to pay for the education of his boys and girls, how can he afford to keep a horse and buggy and other things? The Russian serf is merely a hind, and lives in a house and sleeps all winter. In a long journey through the snow, a family were attacked by wolves and there was no way to get rid of them, and so they threw a child to the wolves; and then another, and another, until there was nobody in the sleigh but the father and mother. And the man who neglects education is just like that. When he comes to the last day of his life, what has he got? Nothing left but some money and the farm. I would not die so poor as that if I had to go and hang myself on a borrowed rope. (Laughter.) You people in this Province spent $81,000 for rural education through agricultural societies and raise money through gate receipts till you have $429,000 in the official reports mainly for seeing horse races and some fake concern. (Applause.)

If you would put that money into schools you would bring the Province right up. There never was in the history of the world any number of people that had so many good things to make for their welfare as the people of this Dominion, and are our children getting half the chance in the country districts? Ten thousand times, no. They do not get it, they do not get to school more than 55 out of 100, and when they do go to school they do their best for some time, and are then changed over to another place and they get no training in manners, and instead of having the boys go through the high school he is changed over to commercial life. You should have agricultural high schools in every county, and consolidated schools in every township, and then you would be worthy of your inheritance and intelligence, and the welfare of this Dominion; and unless you do that and unless you have these schools I was going to say I would leave the country; but I won't till I make these schools grow. (Applause.)

THE "CANADIAN DAIRYMAN".

The PRESIDENT: We appointed a committee in September to look into the matter of an official organ, and some of our members thought possibly we ought to establish a Canadian journal that would be devoted exclusively to dairy matter on the principle of "Hoard's Dairyman", and we have decided to accept the proposition of making "The Canadian Dairyman" the official organ of the Eastern Ontario Dairymen's Society, and the Western Association have also adopted this paper. Every member of the Association will get a copy of the paper free, and it is worth a dollar for the year, and in this paper you will get the best information that can be given on dairy matters. It is only fair to say that the "Ottawa Valley Journal" will continue to devote a great deal of space to dairy matters, so that any one who wants to take it can do so by paying a dollar a year. We feel very much pleased at the way the "Ottawa Valley Journal" has served us for the past few years, but we expect even greater things from the new paper.

SYNDICATE INSPECTION AND CHEESEMAKING.

By G. G. PUBLOW, CHIEF INSPECTOR, KINGSTON.

I take pleasure in presenting my second annual report as Chief of the Dairy Instructors for Eastern Ontario.

As a result of the circular and application forms addressed to factorymen by the Directors of the Eastern Dairymen's Association over six hundred and fifteen factories applied for the services of an Instructor. This being an increase in number of sixty-four over that of last year, made it necessary to increase the number of syndicates from twenty-two to that of twenty-five.

Owing to the lateness in which many of these applications were received a great deal of difficulty and confusion was experienced in arranging the groups to the best advantage. Many, in fact, did not arrive till late in the summer and consequently had to be returned, as the Instructors in the districts from which they were received had as much work as they could possibly attend to. However, where it was possible some arrangement was made by which to give them some assistance. In several instances where the factories were suffering most heavily from defects in their cheese, I gave them my own personal attention which in most cases proved to be sufficient, and for which the people were very grateful.

Here I would like to impress upon the factory owners who request the services of an instructor to make application at an early date, as the instructors have to be engaged from year to year and receive a special training for their work; and I sincerely hope that the parties having this important matter in charge will see that it receives the prompt attention it deserves. Of the twenty-five Instructors who were engaged this season, nineteen were men who were employed by the Assocation last year, which the remaining six were carefully selected from a list of experienced and successful makers who had made application for the positions.

These men were engaged for six months at a salary of $700, which was paid direct to them by check each month from the Department of Agriculture. This method of receiving the salary proved much more satisfactory to the Instructors than the method followed in previous years.

Out of this seven hundred dollars the Instructors had to pay all their own expenses, and as suitable men sufficiently qualified for the work are difficult to procure, I would recommend that their salary be increased. Before the men who were employed were placed in charge of their respective syndicates they attended a two weeks' course of special instruction at the Kingston Dairy School for the purpose of better fitting them for their work.

In order to avoid the necesary time and space it would require to discuss the work in each syndicate I have arranged the following in tabulated form which gives the names of the syndicates into which the factories were divided, the names of the Instructors in charge and a short synopsis of the work accomplished by each.

Syndicate and Instructor.	No. factories.	No. visits.	No. patrons visited.	No. tests for adulteration.	No. samples adulterated.	No. fermentation tests.	Per cent. deteriorated.	No. meetings held.	Average attendance.	No. factories improved.	Cash value of improvements.
											$
Maxville: R. A. Rothwell	27	179	238	2,137	22	687	33	3	30	18	8,329
Kemptville: D. M. Wilson	26	149	251	1,410	2	816	50	10	40	14	4,490
Belleville: H. Howey	27	176	411	2,640	4	60	50	6	....	16	7.000
Cornwall. A. H. Wilson	19	139	....	1,120	35	204	65	18	35	12	1.920
Alexandria: A. McDonald	25	160	35	1,884	15	200	25	3	25	5	3,000
Brockville: N. P. Nolan	27	187	114	1,951	6	422	40	2	35	14	2,845
St. Isidore: I. Villeneuve	28	114	116	4,020	32	420	95	14	30	21	5,238
Campbellford: R. T. Gray	29	156	222	3,629	11	730	25	3	75	11	2,500
Singleton's: F. Singleton	20	216	68	3,420	16	538	50	....	....	19	2,500
Morrisburg: C. W. Norval	27	160	120	10, 296	8	776	20	7	40	8	3,500
Perth: J. Echlin	22	89	106	3,935	5	375	65	2	25	17	5,952
Almonte: W. J. Ragsdale	19	154	151	2,030	4	728	60	1	35	14	1,000
Napanee: R. Bensley	25	170	119	144	5	678	75	2	32	15	1,500
Brockville: E. J. Buro	22	143	20	4.157	40	250	50	2	100	10	2,500
Stirling: J. B. Lowery	29	212	105	1,029	4	547	84	3	41	15	6.100
Brockville: W. R. Ireland	25	251	104	1,547	3	846	80	8	41	20	2,000
Tweed: H. Morton	27	250	145	184	6	130	55	3	30	6	1,410
Renfrew: R. Elliott	21	156	100	1,077	2	624	39	3	30	14	1,781
Ottawa: S. S. Cheetham	26	180	400	2,156	50	308	51	6	80	14	3,085
Peterboro': R. W. Ward	27	262	132	1,590	17	662	52	1	25	26	6,725
Kingston: G. Robinson	30	150	200	2,500	5	600	60	6	30	18	3,500
Bancroft: J. Irwin	14	140	30	809	2	127	65	4	15	6	5,000
Picton: C. A. Publow	19	157	544	4,027	5	328	87	1	100	18	13,860
Lancester: T. B. Code	24	158	75	2,758	6	125	50	....	....	12	3,350
Lindsay: W. J. Hall	30	125	35	.....	1	....	....	....	....	....	.....

From this form it will be seen that the six hundred and fifteen factories in the several syndicates received a total number of 4,263 visits. This number includes calls made at the factory as well as full days spent with the maker. Of the 60,450 tests for adulteration, 306 proved to be tampered with; 209 showing a deficiency in butter fat, while 97 contained added water. In dealing with these cases of adulteration it was necessary to impose 54 fines amounting to $857, which was paid in to the factory treasurers, the remainder being given a warning and allowed to go at this as it was their first offence.

It will also be noticed that some of the Instructors paid more visits to factories than others, but this is accounted for by the larger amount of time spent by the other instructors in personally visiting the patrons for the purpose of improving the condition of the milk. These visits of which a total number of 3,841 have been made during the past season are reaping good

results, as will be seen by the improvement in the number of deteriorated samples in the fermentation tests made, there being only 55 per cent. of the total number of samples not suitable for making cheese of finest quality as compared with 99 per cent. deteriorated last year.

But as well as visiting so many of the patrons a total number of 108 meetings were held with an average attendance of 37, and while a great deal of good resulted from these meetings, it is not to be compared with the improvement wrought by the personal visits to the farms, as it was usually found that the patrons who attended the meetings were sending their milk in good condition; while those who were in most need of instruction failed to be present.

However these meetings are not to be thought lightly of, for they had the effect of bringing the true object of the instruction before the public and of stimulating the patrons and factorymen to improve their factories and the conditions surrounding the manufacture, and as a result some $99,085 was expended in the building and equipping of new factories and the remodelling and beautifying of old ones, bringing the total number of factories improved during the past season up to 343, as compared with $40,536, expended in rebuilding and repairing 248 factories during the season of 1903; or in other words more than twice as much money has been expended in making improvements as was expended last season.

Still I think more good would be accomplished by holding these meetings during the winter months, when the annual business meetings of the factories are held, as it would give the patrons and factorymen a better opportunity to make the necessary improvements asked for. In fact, a great many have applied to me for someone to address these meetings and where it was possible I have complied with their requests. There being still a large amount of improvement to be made, the reports of the different Instructors showing that of the 615 factories in the syndicates only 125 are placed as first-class, while 228 are second class and 262 more regarded as third class. I would recommend that some arrangement be made by the Department of Agriculture by which these requests could be granted another year.

The nature of the improvements required in these inferior factories is, better means of controlling the temperature of the curing rooms, better floors in the making rooms, better drainage and sanitary conditions, better water supply, and the surroundings of the factories made more tidy and attractive.

In some of the syndicates these conditions were improved much more than in others, and I found that the quality of the cheese in these syndicates had improved in like proportion; while in those syndicates made up of small, ill-equipped factories where the people were indifferent regarding the care of their milk, competition was keen and poor makers were employed at low wages. There the greatest percentage of inferior cheese is manufactured.

Of the defects most complained of in our cheese, acidity, weak-bodied, yeasty, and bad-flavored cheese are the most common. A great many such complaints were received during the forepart of the season, especially regarding cheese made in that part of the territory east of Kingston. Notwithstanding the fact that the makers and instructors were repeatedly warned against the manufacture of this character of goods, a large number of such cheese continued to be received in Montreal. This matter became so serious that I invited all the instructors east of Kingston to meet me in Montreal to go through the warerooms of all the leading exporters and see and compare the character and quality of the goods that was being received from

their respective districts and become better acquainted with the faults found by the buyers; and I take this opportunity of thanking these exporters on behalf of the instructors and myself for the cordial manner in which they received us, and for the trouble taken in furnishing any information asked for and pointing out anything that would lead to improvement, for I believe that if there was any one thing more than another from which great and immediate improvement was made it was the lasting impression made by this practical and effective object lesson.

To keep in still closer touch with the work, I had Mr. Woodard, the Official Referee in Montreal, furnish me with a copy of his weekly reports on the cheese he was called upon to examine, and this information not only was invaluable to me in directing the work of the instructors from week to week, but clearly showed the benefit from the system of instruction, as less than one-third of the rejected cheese were received from the syndicated factories.

Of the defects most complained of in our cheese, perhaps the one most difficult to remedy was that caused by the yeast fermentation which this year proved to be so universal in its course and caused serious loss in some sections. Of the remedies that were tried nothing proved so effective in overcoming this as that of having the patrons pay strict attention to the washing and scalding of their milk cans, especially in factories where whey was being returned in the cans, and in cooling the milk to at least 65 degrees F. immediately after milking. This enabled the makers to get their milk set sweeter and have the curds better firmed in the whey before the desired amount of acid had developed, and I would recommend that patrons who are supplying milk to cheese factories provide some suitable means for cooling the milk as quickly as possible to at least 65 degrees F., as it was found that cheese made from milk seeded with this fermentation and containing more than a certain amount of acid (.19 per cent.) were more or less open in character and had a bitterness of flavor which was more pronounced as the amount of acid in the milk had been developed before the rennet was added. This allowing of the milk to become overripe before setting, also causes the texture to be rough and coarse, and makes it impossible to have the cheese of of that fine, silky character which our Canadian cheese should possess.

So extensive was the path of this troublesome fermentation that I appealed to Dr. Connell of Kingston to investigate and if possible locate the seeding of the milk, and the results of this investigation he will give in his report.

The finish of the cheese, I am pleased to say, improved wonderfully during the season, but there is yet room for a great deal of improvement. Of the common defect in our cheese this is the one most easy to overcome, and one to which many of the makers should pay far more attention, as it is one of the qualities he has in his own hands and which he should take the pride and pains to improve.

One of the most pleasing features in the work this year was the manner in which the people received the instructors and complied with their requests, their services being much more appreciated than ever before. And while some of the men employed as instructors may not have accomplished as much as others, still I believe they all put forth an honest effort to bring about improvement in their respective districts, and I am satisfied that as the people become better acquainted with the benefits to be derived from the services of these men the more anxious they will be to have them. As a proof of this I have received letters from a large number of the most progressive dairymen throughout the different districts, speaking of the appreciation

of the work and hoping that the system of instruction would be continued, with requests that the same men be returned to them another year.

As a further proof of the good work accomplished by the united efforts of the instructors and patrons, the quality of the cheese made during the last half of the season, and especially those of the months of September and October, were better and more uniform in make than those of any previous year.

Thus the good work goes on, and with the better organization and the hearty co-operation of the people, we hope another year to make still further progress in making Canadian cheese famous for its excellence of quality and demonstrate to the world the ability of the dairymen of Canada to manufacture fancy dairy products.

DAIRY ADVANCE.

By G. A. Putnam, Superintendent of Farmers' Institutes, Toronto.

I am sorry to say that I was not able to be here yesterday to hear the addresses and discussions of the opening sessions. The previous speaker has dealt with some of the points which I had intended to emphasize, and for this reason, and the fact that I have had to re-arrange the whole series of Institute meetings for the Province and assign speakers during the past few days, my remarks will not be lengthy, and I am afraid not very well connected.

In the early history of dairying in this province, it was looked upon as a mere side-line, but it has now become the most important agricultural industry in the Province of Ontario. For the past thirty years in certain sections of the western part of the Province, the industry has formed one of the most important branches of agriculture. Later it came to take a prominent place in the eastern section of he Province, and it has been the salvation from an agricultural death of many of the farmers of this section. Great results have been attained; greater possibilities lie before.

I would like for a few moments to look over the ground and see what improvements can be made, and we find plenty of room for this with all who have any connection with the industry. Though the most progressive farmers have weeded out their poor cows and are making an effort to get better cattle, the reports from instructors and others indicate that there are many inferior dairy cattle throughout the country and that they are poorly taken care of. Improvement has also been made in the production of feed for these cattle. We have not however, reached anywhere near the possible in this branch, nor have the farmers reached the highest point in the handling of milk after it is produced. The proprietors of cheese factories have not aimed to improve their equipment, with the result that many of the factories in this Province are away below the standard. Then, again, the makers have not improved as they should by attending the Dairy Schools and taking advantage of the many opportunities afforded them for improvement.

What do we require? The proprietors of factories require more definite information as to the improvements which have to be made, and I think that provision should be made to send out men of experience to show factory men just what improvements should be made in their factories. They should be given definite information as to the inferior fitting, the water supply, ventilation, sanitary conditions, etc. It is true something has been accomplished in this direction, but more remains to be done. The instructors have done a good deal along this line and the reports received of their work this year are most favorable, and I know the instructors have done excellent work.

In this Province we have some two hundred thousand farmers, some on a large scale and some on a small. The greater number of these are more or less interested in dairying, and with our Agricultural College, our Dairy Schools, our Farmers' Institute meetings, etc., I see no reason why they should not improve rapidly, and so far as the College and Schools are concerned we cannot hope to reach directly more than 5 per cent. of these men. How are we to instruct the other 95 per cent? One of the chief factors in the education of the farmer who does not take advantage of the schools and colleges is the agricultural press. The press has been a great factor in the uplifting of the general agricultural methods of this Province. The Farmers' Institute takes the information which has been gathered together by the colleges and schools direct to the farmers. We also have many other Agricultural associations which have their part in this great educational work, and last, but not least, we have the dairy instructors, whose work we have heard so ably discussed by Mr. Publow.

I shall confine what few remarks I have to make to the work of the Farmers' Institute and Dairy Instruction. It must be admitted that the general practice of agriculture throughout this Province has greatly improved during the last fifteen or twenty years, and a good deal of this improvement is directly traceable to the influence of the Farmers' Institutes. We find that there is evidence of a change in the nature of the instruction asked for, and requests are coming in from various sections that we send *specialists*, men who know practically all there is to be known of dairying, men who can discuss the raising of beef cattle from the calf to the finished product, and men who can give full instructions as to the selection and raising of hogs, etc.; and it is my aim and duty to get men who can give this *definite* information. As a means to an end I am asking all my Institute speakers this winter to furnish me with all the information they can gather about each place visited; whether dairying, beef raising or general grain growing is the most important, or a combination of all. I shall also ask the Local Institute officers for like information, and to furnish me with the names of some of the leading farmers in the vicinity where the meetings are held. Then I shall compile all this information, and next year I hope to be able to send out men who are specially prepared to speak to the people in the locality visited. This is one way in which I think the Institute work can be improved. The demand for specialists has never been so great as it is at the present time.

I was very glad to hear Mr. Publow lay emphasis upon the fact that the most marked results have followed visits of instructors to the farms. One of our instructors during the past season succeeded by personal canvass, in inducing more than 200 of the patrons in his syndicate to make decided improvement in the facilities which they had for the cooling and handling of milk. I venture to say that if that instructor had not made these personal visits, but depended upon writing to the patrons he would not have induced 25 of them to make any improvement. And this convinces me that one point which is to be more and more emphasized is that we have to take the information direct to the farmer.

If we hold a meeting in a certain district we get the very best farmers in that locality to attend, but we do not get out the men who are most in need of instruction, and it appears to me that we have to take matters into our own hands, and go to the farmer. If you go to him and speak kindly to him, and impress upon him the fact that you want to help him, then he is ready to follow any instruction which you may give him.

The Dairy Schools have not been over-crowded, and yet a great many of the cheesemakers are not so well equipped as they should be, and I wish to

impress upon them the necessity of taking advantage of the Dairy Schools. If you cannot attend for a whole term try to attend for a week or two, and in that time you will receive many valuable hints, and get many pointers that will be of value to you.

Some have said we require better instructors. I suppose that is true. I venture to say that there is not one instructor who feels that he knows all about the dairy business; from the Chief Instructor down, they realize that there is always something further to learn regarding the new foes met with. Provision should be made to increase the facilities for these instructors to receive information in order that they may be the better equipped for their work.

Another point which Mr. Publow mentioned is the furnishing of speakers at the annual meetings of patrons. There is more than one reason why this step should be taken. During the past season a great many meetings have been held, but they have not generally been attended by the farmers who are the most in need of instruction. If you send a competent speaker to the Annual meeting of the patrons, you are assured of a good attendance. It is my purposes to recommend to the department that they make provision to send a competent speaker to every factory which makes application. It will be necessary for these factories to make application early in the fall or late in the summer in order that the dates of the annual meeting may be set so that the speakers sent may travel from place to place without involving too great an expenditure of money in travelling expense and an unnecessary waste of time.

I think, instead of having one convention like this, we should have ten or twelve conventions in the eastern part of this Province. You may call them Dairy Institute meetings; and if one were arranged for at a central point in each dairy district, an opportunity would thus be afforded each maker and proprietor to attend what would be equivalent to a Dairymen's Convention without having to travel a great distance. A great deal of time was lost last spring because the syndicates were not worked out early. This will be avoided this year. We have not used the press during the past season so much as we intend to during the coming season. With over one hundred thousand farmers to reach we must adopt some means by which all the agricultural papers will receive timely information.

I wish Mr. Barr, Chief Instructor for the West, were here so that he could tell you of some of the work that he has accomplished in the West. He saw early in the season that a great deal of good work could be done by the instructor going from farm to farm, and many a time they have walked 4 or 5 miles early in the morning in order to catch the cream gathering wagon, and thus have an opportunity to spend a few moments with each patron, and insruct him as to the best way for taking care of the milk. Mr. Barr says two instructors made 1123 personal visits during the past season, and the instructors in the East can from that have an idea of the number of visits which it is possible to make. I would not ask them to walk 4 or 5 miles before breakfast every morning, but some of the inspectors in the West did that, and they say the results therefrom have been more marked than any other work which they have done.

The Department cannot and will not afford to slacken along dairy instruction lines. Dairying will continue to be one of the chief industries of this Province, and it must be pushed in every conceivable way, and it is only when we have the co-operation of the farmers, the proprietors, the makers and

instructors that we can hope for the best results, and I am very glad to be able to say that harmony among these men is an evidence of the good work which will be done next season.

DAIRY BACTERIOLOGY.

By W. T. Connell, M.D., Kingston.

I find it a rather difficult matter as the years roll by to vary the text of my talks before this Association sufficient to have it appear that such talks really contain anything new. You see I am tied down to the general principles of my special branch of the subject as its details are too technical for those not working on the subject. However, while many of those on the platform will have heard much of what I am going to say, the fact that our meetings are held in different parts of Eastern Ontario makes the subject a new one to most of the audience. I am going this morning to consider some of the relations of bacteria to dairy work, especially some of what I may term the bacterial diseases of milk and its products.

Let me first point out some characteristics of bacteria in general. I must first state that these organisms are plants, not animals or bugs, as many seem to think. They are exceedingly minute, very much too small to be seen by the unaided eye, indeed some are so small that the most powerful microscopes are required to make them visible. So small are they that 1,000 of the largest bacteria could be placed end to end and would only measure an inch in length, while 50,000 of some of the smaller bacteria could be similarly placed. Now these bacteria in many of their general characters resemble ordinary plants, and like them, under favorable conditions, they grow and reproduce their species. The conditions requisite for their growth are suitable food, moisture and a favorable temperature, which are exactly the same conditions as are required by any plant—soil, water and sufficient heat. But bacteria differ from most common plants in that growth with them means the continued formation of new plants. In ordinary plants the plant grows larger and larger and forms seeds or sprouts and these seeds in turn when planted grow into fresh plants—but with bacteria growth means the immediate formation of new plants. The plant simply increases slightly in size, then divides through the centre into two, sometimes four individuals. Each of these again enlarges somewhat, and again divides up and so on. If the conditions for growth are suitable this new formation of plants may take place very rapidly. Thus new plants may be formed every 10, 20, 30, or 60 minutes. Let us take the latter rate of increase, which is rather slow, and carry it on for just 24 hours, and we find that from a single bacterial cell or plant over 16,000,000 bacterial plants would be formed—(1-2-4-8-16-32-64-128-256, etc.) You can see that rapidity of growth will largely make up for minuteness in size. While then we cannot expect to see with the unaided eye these minute plants, we can very often be assured of their presence by the changes which they bring about in their growth. The bacteriologist, of course, has special technical methods at his disposal for their study and determination which cannot here be entered into. There are hundreds of species of bacteria, and they differ more or less from each other just as ordinary plants do, and they of course differ greatly in their food requirements, thus we have some species which grow best in or around our bodies. These are the disease producing species such as the bacteria of diphtheria, typhoid fever, consumption,

etc. Others flourish in the soil, and indeed our soils would be nothing without them, for in the soil there are found a group of bacteria known as the nitrifying bacteria which have a very important part to play in the enrichment of the soil. For to them is due the property which soils have of seizing on the nitrogen of the atmosphere and building it up into compounds which can then be assimilated by ordinary plants. The U. S. Department of Agriculture are now sending out to farmers who apply for it—cultures or growths of these bacteria to be added to enfeebled soils and the results have been very marked. Again other species are found as the agents of various kinds of decay or putrefaction. Very many of the forms of decay are due to growth of bacteria in the dead tissues of plants or animals; thus the common rotting of meat and many vegetables, the heating of manure and its odoriferous qualities, depend upon bacterial growth for causation. Closely related to this process of decay is the process of fermentation, a condition of change brought about in substances by the action of minute amounts of substances known as ferments; these ferments in many instances being bacterial in origin. This process of bacterial fermentation is especially interesting to us in connection with milk and its products, as it is in these that we see many of the effects of fermentative changes. Milk is a good food for a large number of bacterial species, some of which are so commonly found in it or its products that we may term them "milk bacteria." These bacteria are very active fermentative agents, and many of the changes which milk undergoes in its manufacture into cheese depends upon their activity. Such changes as acid production, souring and curdling of milk and ripening of cream are common examples, while such conditions as gassy and foul flavored milks, pin-hole and gassy-curds, off flavored, rancid and bitter cheese, are examples of the action of abnormal bacterial ferments.

Before considering these milk bacteria in greater detail, let me shortly consider another one of the requisites for bacterial growth, viz.: temperature. Bacterial plants are much like ordinary plants in showing considerable variations in their heat requirements. Thus, some will only grow at body heat, 98 to 99 degrees, F., while others grow down to 60, 55, or 50 degrees, F., a few growing at even lower temperatures. But as a rule very few bacteria grow in milk below 50 degrees in the periods during which milk is ordinarily kept, and when growth does occur it does so very slowly and corresponding changes effected are slow to develop. The nearer we get to the freezing point, the fewer bacteria develop, while below this point no bacterial changes can occur. These facts constitute the basis of the cold storage and refrigeration methods of food preservation. For as decay is very largely a process resulting from bacterial development this process is prevented by lack of suitable temperatures for such development.

At the Ottawa meeting two years ago I brought forward figures showing the effects of temperature on the development of bacteria contained in milk. These figures showed practically no change in number in 24 hours, when kept at 50 degrees, F., slight increase at 55, considerable increase at 60, and so on up till at 98 degrees the bacterial growth was enormous, and the milk was sour and curdled. I bring forward these facts again because of their great importance in the care of milk, because if milk is kept at high temperatures it is going to spoil more or less before it can be carried to the factory to be manufactured. Hence I say that the patron who does not cool his milk, especially in the hotter months of the year, is adding enormously to the burdens of the cheesemaker. I would go further and say that he is culpably negligent in that which pertains to his own welfare as a dairyman as well as that of factory.

Milk is, as I have before remarked, a good food for many bacteria, and these bacteria are seldom absent from milk. Where do they come from? Healthy cows secrete milk free from bacteria, but if one examines the milk in the pail after even the most cleanly method of milking, bacteria will be found and usually in large numbers up to several thousands per 1 cc. (16 drops). The cleaner the conditions are, the fewer bacteria, however, for when all conditions are the best attainable, there will be fewer than 1-6 as many bacteria as when the milking is done with dirty hands, in an untidy, dusty milk shed or stable, and where the cows are not brushed down. It is evident, then, that some of the bacteria come from the teats of the cow, while others come from the surroundings of the cow during milking, from hairs, manure and dust. Ordinarily those derived from cows' teats are largely the common acid forming or souring bacteria, while those derived from hairs, manure and stable dust are apt to be bacteria, which if not prevented from development will tend to produce gassy and off-flavors. Barnyard and road dust, fowl droppings and flies are other sources from which bacteria may get into milk. To these may be added as exceedingly important factors in very many cases the milk cans. I have made an investigation of the milk cans at one factory this summer after they had been cleaned and ready to receive milk. In over 50 per cent. of such cans, whey or whey washings could readily be demonstrated, and in 25 per cent. of the cans minute particles of the curd or fat masses which so often are seen in whey vats were found. This shows that the ordinary washing done by a large number of patrons of factories is exceedingly perfunctory in character, and can make no pretensions to cleanliness, and is very widely removed from bacterial cleanliness. What a factor such cans must be in seeding the milk, when the whey in vats is infected with various evil forms of bacterial life (in so far as regards cheese) can readily be seen. Lack of cleanliness in factory or surroundings, in vats or utensils, is also a fruitful source of trouble, as are also bad water or drainage. I have in previous addresses gone into this matter more fully than I can to-day.

Some of the defects which are due to bacteria, and are remediable, such as over-ripeness, gassy and bad flavoured milks and cheese, fruity, bitter and open cheese, I will consider slightly in detail.

Much milk which comes into factories in the hot weather is over-ripe. From a bacteriological point of view there has been a marked over-growth of the acid forming bacteria, which are almost natural to milk. This over-growth is due in all cases to the milk being kept at too high a temperature—to lack of cooling of the milk. The bacterial cause is almost always present. The condition of their development is a suitable temperature, and thus the cure is within the reach of any patron.

The next defect, and one which is fairly common, is the development of gas and of bad flavors in milk, curd and cheese. While gassiness and bad flavors do not necessarily go together, they very often do so. The sources of bacteria causing these taints are largely manure particles either getting in direct or as manurial dust from barnyards, hog pens and stables or from hairs. Manure contains very large numbers of the same kinds of bacteria as are found in such gassy and bad flavoured milks, and if such particles gain entry and bacteria therein multiply, why naturally such changes are brought about. The development of acid usually checks the development of much gas, but it should be kept in mind that these common gas bacteria are also active acid formers. Of course such bacteria may come from other sources, as bad water, dirty milk pails and cans, road-dust, etc. Practically all are summed up in lack of cleanliness in milking or keeping the milk, and the remedy lies in

the hands of the patron. In this respect, as in over-ripeness, the temperature at which the milk is kept is important, for if milk is well cooled such bacteria cannot develop. As I have shown several times, temperatures up to 65 to 68 degrees aid the normal acid developing species, while temperatures above this are quite as suitable for the development of the common gas formers if they are introduced.

Bitter cheese with openness seem to be due to the presence of another set of microbes altogether than the bacteria, viz.: yeasts. These yeasts have a family resemblance to bacteria, but not more than a horse and a sheep have to one another. This fact is what makes it rather difficult to study them—at least for bacteriologists, as we have trained for bacteria, and not yeasts; so that it would be like a sheep farmer turning horse breeder. However, much has been learned this last few years. Prof. Harrison, of Guelph, made some of the earliest studies along these lines in this country, and wrote an excellent description of bitter milk and cheese yeasts. These conditions we have here differ from that which Prof. Harrison described, in that the cheese are open and bitter too. But the cause is a similar organism to that found by Prof. Harrison—a yeast,— and this an exceedingly widespread one. Mr. Publow has already spoken of the nature of the changes which it produces in cheese and the treatment to be adopted. I want to add the results of some work done this past season on this subject. In a factory near Kingston this condition of open, bitter cheese was found, but only moderately marked. In fact, Mr. Publow said the factory showed less trouble than the average of the district. Samples of each patron's milk were collected and examined, and out of 35 patrons, 12 were sending the yeast organism in their milk It was noted that of those affected, the bulk of cans were rusty or broken, or the milk was not strained. An investigation was then made of the farm yards and stables. About one-third of the cans were under trees, but in no case did the leaves of these trees show any yeasts. None of the yeasts were found in the air or dust of stable or milk yards, but a different state of affairs was found on examining the cans after they had been cleaned, for two-thirds of these cans from patrons who brought affected milk showed yeast in the cans. The yeasts were found in the whey vats in large numbers, so that in this factory there could be no doubt that it was a whey and can affection. In this same factory there was a fair number of flies. A few were caught and examined simply as a matter of interest. Out of the number, one showed the yeast and two contained common gas forming bacteria. This was rather interesting as showing that flies carry these infecting agents in factories, bearing out some facts discovered by me when investigating a factory in Northumberland Co. Prof. Harrison showed that his bitter yeast grew on trees, and stated that he believed such to be the source. This yeast, which is causing so much trouble here, may grow on trees and grasses, and may primarily have been derived from them; but in my opinion the main source of trouble is lack of careful cleansing of milk cans and other dairy utensils, especially when aided by an infected whey tank. At the Eastern Dairy School last winter some of the farmers kept bringing in this yeast in their milk all winter, a proof that it was due to lack of care of dairy utensils as tree infection could be excluded. So far this year the same state of affairs exists. In growing, this yeast shows some interesting characteristics. Thus, it does not seem to produce gas unless acid be formed, and it also shows marked bleaching power, though an analysis of gas formed shows that it is not the gas which has the bleaching properties, but some other chemical constituent produced by the yeast.

To sum up the main points in this address: Bacterial plants require for growth much the same conditions as ordinary plants, food, moisture and favorable temperature (soil, water and heat). These bacteria are important in many processes and are especially important to dairymen, as they are the cause of many fermentative changes in milk and its products. Some of these fermentations are essential and necessary to the manufacture of cheese and butter, others are abnormal and lead to defects. As a rule, bacteria causing these defects arise from remediable conditions, and are mostly to be ascribed to lack of proper care in milking, or in the after care of milk, or they result from unsanitary conditions which prevail in or about factories.

Prof. Robertson: I am delighted to see the great progress made in this part of Ontario, and especially to learn from Mr. Publow the excellent report and that you have so very many good instructors. I think these instructors might do a good deal more work than they are now doing. If the instructors would see the local newspaper men, and give them an item about any one who is doing real good work it would have an encouraging effect. Let people know about these good farms, and good farmers and clean factories, and then everybody else would like to have a farm like it.

A Member: Could it be arranged so that the instructors could visit the patrons at the annual meeting that is held once a year. I think by doing so they will help the man in the factory. If it was advertised that the instructor was going to be present everybody would turn out.

Mr. Publow: That is a very good suggestion. It is our intention to select as good a man as we can for that work. The instructors have just been engaged for six months this year. Only 25 per cent. of the makers in the syndicate this year were first-class men. The makers are not doing just as well as they might. We are directing our energies to where the most good can be done. Where we found the maker was not doing good work, the instructors devoted their energies to that man. Very few meetings were held in some places, because the farmers were doing better work than either the factory worker or the maker.

When an instructor goes through a district he knows just what is required and is able to give definite information. We have not been honest with the people of this country. Selfishness and cheapness are responsible for the present condition of the dairy business. I hope the instructors will be engaged for a greater length of time, and that the best men will be selected to attend these meetings, and I will suggest that our Dairy Schools will be closed till after the New Year, and that the best men on the staff there should be used for the purpose of giving instruction.

A Member: I think the instructors have not been persistent in the advice given to the farmers of this country. In 1900 and 1901 they came to us and said: "Make no cheese previous to the first day of May, nor later than the last day of October." Is not that the case? In 1903 the exporters came to us and said: "Here, open up your factories in March, and we will give you 10 1-2 cents and 11 cents a lb. for your cheese." Was it not the duty of the instructors to go to these people and say: "Don't do it." In our municipality we have a shortage of over $71,000 this year, and you say in your programme that there is 30 per cent. of a fall off. What does that mean? It means a big loss to this Province, and I only hope that the Superintendent of Farmers' Institutes will bring this matter before the Institute meeting, and I think every factory in the Province should send at least one delegate to the Dairymen's Association, and see that they get fair representation on the Dairy Board

Mr. A. Clark: I want it to be thoroughly understood that the dairy instructors of this country never advocated the making of fodder cheese. The instructors have never been allowed to go on the road before the first of May. The people were responsible. (Applause). The dairy business belongs to the farmers of this country and they should not be selfish. The buyer is in the business for what he can make out of it."

A Member: You should see that he does not get our goods until the proper time.

Mr. Publow: You should see that he does not get anything else but first-class cheese. (Loud applause.)

Mr. Derbyshire: I believe that the instructor should visit the factories and call the patrons to time, and stand right on the floor before these people, and tell them they have not a first-class maker, and tell them the price they were paying was not sufficient to get a first-class man, and that the factory was a poor miserable low-down shelter, and that it was not fit for producing the best goods, and let the farmers know it. (Applause.) Do you think a farmer would put up with such an imposition as that on the part of the makers? Not a bit of it. Let us square right up in 1905, and come right to the front. I believe we want to be honest with the farmer. What is a man going to do who owns a little bit of a factory in the country, and the farmers pinching him down to one cent a lb., and wanting him to board himself. Do you think that man is going to have any heart in him, and to do good work in the business?

Mr. Stafford: I believe the farmers in this country are willing to pay what it is worth. I think it is the manufacturers and buyers who are to blame. We make first-class cheese, and come to the Brockville board and we ought to get a first-class price for it. We were making it for $1\frac{1}{8}$, and they said it was too hard a price, and they put it at $1\frac{1}{4}$. Just as soon as the farmers understand what it is worth they are willing to pay, but we want good prices for our cheese. It is a hard job for these instructors to attend every meeting in the country You will find that if the farmers are told what to do they are willing to do it.

A Member: I believe that if the farmers of this country are educated and square. Take Mr. Publow's report, in which he says they have spent and know what is necessary, they are willing to meet the manufacturers fair $139,000 in improvements of their plant. I think Mr. Publow will bear me out in saying that some of that was spent in the Brockville district. I am pleased to see the Superintendent of Farmers' Institutes and Dairy Schools present, and I think that at our convention we could have one good man who understands the manufacturing part of this business to address the people. I am not fault finding. Everything that has been said is all right as far as I am concerned. (Applause.)

Mr. Collinson: I am an old Farmers' Institute man. I was a director of the first Farmers' Institute in Dundas, and am still one. It seems the Institutes have gone about as far as they can go. The people who get out to our Institute meetings seem to be as well equipped to instruct as the men who come to instruct them. It may not be that way all over, but I think the Superintendent ought to be more careful in selecting the men sent out, and ought to send us a man pretty nearly equal to Professor Mills. As far as Mr. Publow is concerned, I think he has done a great deal of good; he has put forth an effort that we are proud of." (Applause.)

Mr. Putnam: I was very pleased to hear Mr. Collinson state that the farmers in his locality are as well qualified to instruct as the delegates. I

think that is the best proof that the Farmers' Institute meetings have been productive of good results, and I am very glad to know that the farmers in his district are so well qualified.

Mr. COLLINSON: Reach out further.

Mr. PUTNAM: Just along that line is where I am finding my greatest difficulty to find men who are a little better equipped than the audience they are going to address. I have searched and inquired, and done everything in my power to get better men. I have no hesitation in saying that the Institute speakers are as gifted men as we can get hold of. However, as I stated before, it is becoming more and more necessary that we employ specialists. You cannot get an Institute speaker who is an authority on dairying, and at the same time an authority on beef cattle, and the production of bacon. We shall have to lay out our work more carefully, and send a specialist to each place.

Mr. DERBYSHIRE: That is what Mr. Collinson wants. He does not want a hen man sent to a district when dairying is the principle business. We have had men sent here to talk about hen business, and the horse business, and one thing and another that we do not care anything about. What we want is better cheese, and bacon, and men who thoroughly understand the business, and who put something practical before the farmers. (Applause.)

Mr. SINGLETON: It seems to me that this discussion is of a practical character, and the questin that is of the greatest importance is how are we going to get the work of the Dairymen's Association more closely in touch with the milk producers. I am perfectly in accord with all that has been done by this Association, but I can see plainly that there is a great chasm between the crowd we have got here to-day and the milk suppliers of this country. Prof. Robertson told us last night that cheese making had got to about its zenith. I understood that he meant the facilities for educating the cheese maker had got to about the top. We have farmers supplying milk within an easy access to this town, and very few of them are here. I do not think we have 3 per cent of them.

Mr. DERBYSHIRE: We selected yesterday as farmers' day, and we selected the best men in Canada and United States to discuss questions that were of interest to the farmers. We sent out 13,000 leaflets advertising the meetings, and we put it in the press, and you see the result.

A MEMBER: You will have to pay them wages to come.

The CHAIRMAN: That is a new thing, and we will try it next year.

Mr. GEORGE SMITH: I think you are hard on the farmer. We have heard from Mr. Publow that only 25 per cent. of the cheese makers were fit to make first-class cheese. I do not believe there is one per cent. of the farmers of this country producing milk that is not fit to make the very best cheese.

Mr. PUBLOW: I would like to tell you the truth if I had the courage to do it.

VOICES: Tell the truth, out with it.

Mr. ANDERSON: Give it to us, whatever you think is right."

Mr. PUBLOW: I did not say there was only 25 per cent. who could make first-class cheese. I said there was only 25 per cent. of them were first-class men, and when we say that we mean all round men that can serve the people to the best advantage. A first-class cheese maker should be a man who is able to do more than make cheese. (Applause.) He should be able to instruct his own patrons, and he should know just what troubles they have to contend with. He is a man above all other men who should know what is needed, and how to apply the remedy to any evil that may crop up.

The farmers of this country should see that their products are the best that can be produced. Every factoryman in the country is willing to have his factory in first-class shape, if you will give him the consideration he deserves. I know a factoryman in this country who built a splendid factory up-to-date in every respect, and the patrons were so selfish that they allowed another man to come in who would make the cheese for less money, and take away the patronage. (Great applause.) The cheese factory is the best market the farmer has got in this country, and why is it you cannot go to Brockville and get the best price? The greatest percentage of rejected cheese this past year came from Brockville section. Why is it? Because we have the greatest number of small poorly equipped factories. We have a lot of good factories in Brockville district, but the percentage of poor ones is greater from Brockville than any other section. Other sections have been more progressive than you have been. Every farmer should see that the factory he sends milk to is thoroughly up to date. It costs the farmer more to make poor cheese than to make a good one.

Who do you think are showing the greatest interest in the business, the cheese makers or the farmers? I think that perhaps the cheese makers are to blame for this state of affairs. We go to the farmers and say we will make your cheese for a certain price, and we will guarantee to give the best market price. Don't you think they have got you by the hip.

The farmers say, "He has guaranteed to give us the market price. So long as you guarantee to give us the market price, and guarantee the farmers against loss, they will not care very much, or take a great deal of interest in supplying better milk. The farmers should go to the factory and lend the cheese maker your assistance. Don't abuse him, but try and help him. If he is not the right kind of a man, get rid of him, and get a better one. You may not get the highest market price, but if you are making poor cheese in your factory someone is suffering.

Mr. LEGGAT: I am a farmer, and I always try to do the best I can. Mr. Hart, Superintendent of Dairy Schools in Kingston, said that 75 per cent of the trouble is in the whey tank."

Mr. PUBLOW: That comes right to the farmer again; because it is traced to the whey tank. Then they don't look to their interest and see that the whey tank is kept clean, and the reason the whey tank is not clean is because the cans are not well washed. (Applause.)

Mr. LEGGAT: You cannot wash the cans clean if the whey tank is not clean.

A MEMBER: I have been milking cows for the last 40 years, and attending Dairy Institutes, I like to have the cows well looked after, and see that the men wash their hands, and clean off the cows before they milk, and I aerate the milk: I bought the aerator from Mr. Derbyshire. We never have any trouble. They always give me credit for sending clean milk, and I do not go to any extra trouble about it. Five men and myself milk the cows. I give the Dairymen's Association of Eastern Ontario the greatest credit for the instruction that they have given us. I am a factory owner, and I have no rate the milk. I bought the aerator from Mr. Derbyshire. We never have any trouble in the world. I always make it a point to get the best cheese maker I can find. Mr. Publow recommended one to me. Mr. Derbyshire has bought our cheese for years and years. My milk went to the World's Fair in cheese. (Applause).

Mr. BURKE: I have been in the cheese business for 8 years. I scrub my tanks once a week. I had considerable trouble with one of my patrons. I

examined his cans, and I thought there was enough germs, I do not know much about germs, but I found enough in the bottom of that can to spoil any man's milk, and I told him to clean his cans, and I went to his farm, that night, and I examined the can. It was thoroughly clean, and I made up my mind that the milk would come clean the next morning. I saw the milk put in the can, and I asked him to let me see the dipper that he used, and I was thoroughly disgusted when I looked at it. I think there were enough germs and bacteria on that dipper to set any milk off, and there were enough rags around it to spoil any milk. The man was living on a rented farm, and so I gave him a two-quart dipper with which to bale his milk, and after that I got good milk. (Applause.)

A MEMBER: This idea that a farmer is a very selfish man, and only cares to get his milk taken in at the factory, and holds the maker responsible, is not my experience of farmers at all. In the district where I come from, I find that the farmers take a great interest in the business, but I believe that the great majority of farmers do.

Mr. BRISBY: We have the name of having a very good factory, and we keep a good maker. We use aerators and take pretty good care of our milk. I think we should have a system of paying according to the milk. When you get more money by putting up good stuff I think you will see more interest taken in the business.

A MEMBER: About three years ago I gave up making cheese on account of other men working for lower wages. The factory I left had a great deal of trouble. I had to buy aerators, and pay for them myself, and I had to go around some of the cans with a nail and take all the dirt out of them. There are some farmers who will not be clean. I think a big improvement can be made in most of the farmers, and in the cheese makers as well.

Mr. BURKE: It is not the farmer who sends a lot of the milk that gives the trouble: it is the patron who sends 50 or 100 lbs. of milk.

A MEMBER: I think the whole thing rests largely with the maker. I am a maker myself. As it has been said here it is not the majority of farmers who send bad milk, but it is one or two in a district who create all the trouble, and if we refused to take their milk we would get at the root of a great deal of the trouble we are having. We might lose a little commission for making up that milk. It rests very largely with the makers to tell them to send their milk right or keep it at some.

SOME TRUTHS ABOUT DAIRY COWS AND DAIRY STABLES.

By Prof. H. H. Dean, O.A.C., Guelph.

It was with much pleasure that for the fifteenth time that I meet the Eastern Dairymen's Association. It is a pleasant duty to come here and talk to you about some of the problems which concern dairymen. After such a year as we had during 1904, it is more important than ever that we should give close attention to the cost of the production of milk, and I hope during my address to be able to throw some light upon the question of how to reduce the cost of production of dairy products.

Sometimes we do not sufficiently realize the difficulties which confront the dairy farmer. I can hire a man to make butter, to make cheese, and to do almost anything about the dairy more easily than I can hire a man to attend the cow stable and look after the cows. I find that the most difficult

part of my work is to get good cows and get them properly cared for. We have not perhaps sufficiently realized the difficulties which confront the man who owns and milks the cow.

My topic this afternoon is "Some Truths about Dairy Cows and Dairy Stables." Truth is a plant of slow growth. Thoughts and opinions multiply with wonderful rapidity, but when we try to get at the truth and the facts connected with any problem we find that it is a very slow matter. Experiments are expensive things, but when we do reach the truth by this means we know that we have something which we can rely upon.

We have discovered this truth: that when a cow reaches a certain production, if you push her beyond that point the milk is produced at more cost. With an average good cow it is possible to get a production of 7,000 or 8,000 pounds of milk in a year at a moderate cost, but when you get beyond this and try to make a "big record" for your cow it adds materially to cost. Every 100 pounds of milk which a cow produces beyond her natural limit of production costs from one to three dollars, hence our dairymen have to study more and more closely how they can feed their cows economically in order to produce milk at a profit. It is not altogether the quantity of milk the dairy cow yields, which should receive attention, but the net profit which she turns into her owners pocket in twelve months is of more importance.

The highest yielder is not always the most profitable cow. Economy in the production of milk is an important factor. It is not possible in an afternoon like this to begin to cover all the points. First, I shall try to give you some information as to the way to keep track of the yield of the cows in our dairy. Each cows number is put on a sheet prepared for that purpose in a frame that looks like a window, and which slides up and down over the sheet. There are two panes of glass in the frame about half an inch a part. After the cow is milked, the milk is weighed and the pounds are recorded on this sheet. A sample of the milk is taken in a bottle labelled with the cow's number. It does not take very long to do this, and at the end of the month, or the year, we have the cow's record—the number of pounds of milk given, the percentage of fat, pounds of butter, etc.

Record of Dairy Herd from January 1st to December 31st, 1904.

Rank.	No. of cow.	Live weight.	Age.	No. of days milking.	Lbs. milk.	Average per cent. fat.	Lbs. butter adding 1/6 to fat.	Value of butter fat at 20 to 25c. per lb.	Value of milk, at 4c per quart.	Cost of feed.	Profit over cost of feed.	
											Butter.	Milk.
		lbs.	Years					$ c.	$ c.	$ c.	$ c.	$ c.
1.....	17	1,436	8	296	9,161	3.5	381.5	68 15	146 57	28 80	39 35	117 77
2.....	38	1,158	7	289	8,634	3.4	347.7	64 38	138 14	32 23	32 15	105 91
3.....	15	1,317	7	311	7,677	3.2	291.1	51 70	122 83	30 11	24 59	92 72
4.....	41	1,010	7	226	7,580	3.0	263.3	50 38	121 28	23 75	26 63	97 53
5.....	21	1,325	8	250	7,156	3.6	306.1	56 47	114 49	27 30	29 17	87 19
6.....	67	1,100	10	280	7,139	3.5	292.3	55 58	114 22	30 86	24 92	83 36
7.....	56	1,278	3	293	6,725	4.1	323.2	61 35	107 60	29 97	31 38	77 63
8.....	26	822	6	353	6,414	4.3	322.1	59 74	102 65	23 08	36 66	79 57
9.....	76	1,160	3	273	6,217	3.4	248.6	46 31	99 47	28 51	17 83	70 96
10.....	66	967	4	366	6,035	4.2	301.6	56 12	96 56	26 01	30 11	70 55
11.....	20	1,160	.....	201	5,768	3.3	225.5	41 01	92 28	19 53	21 51	72 75
12.....	61	1,225	3	259	5,626	3.3	217.9	40 24	90 01	24 56	15 68	65 45
13.....	28	1,118	5	215	5,179	3.7	226.1	39 16	82 86	19 50	19 66	63 36
14.....	79	1,176	4	262	4,672	3.3	179.8	33 73	74 75	26 89	6 84	47 86
15.....	70	837	3	236	4,025	4.9	232.4	40 84	64 40	18 85	21 99	45 55
16.....	54	950	7	233	3,960	4.0	186.5	35 05	63 36	16 47	18 58	46 89
17.....	78	969	2	161	3,928	3.2	151.2	28 55	62 84	21 56	6 99	41 28
18.....	44	1,135	4	209	3,902	3.5	159.3	28 47	62 43	21 54	6 93	40 89
19.....	72	1,000	2	239	3,802	3.6	161.8	28 45	60 83	19 13	9 32	41 70
20.....	2	1,197	7	290	3,779	3.7	166.1	30 94	60 46	22 39	8 55	38 07
21.....	71	895	2	162	3,559	3.3	136.8	24 81	56 94	20 09	4 72	36 85
22.....	82	811	2	236	3,472	4.3	175.2	30 62	55 55	16 82	13 80	38 73
23.....	65	1,065	4	178	2,596	3.9	120.1	21 66	47 53	20 67	99	26 86
24.....	75	800	2	204	2,515	4.4	130.1	24 12	40 24	17 83	6 29	22 41

The foods that we give to the cows are charged at the following prices:— Straw, $2 per ton, hay $6, ensilage $1.50, mangels 7 cents per bushel of 60 pounds. These foods are all grown on the College Farm. The other foods we buy on the Guelph market: Bran $16 per ton, shorts $20, and oil-cake $28 per ton. The pasture is charged at $5 per cow for the season. They are on grass about five months in the year. The feed is not all weighed to the cows at every feed, as that would mean that we should require one or two extra men in the stable and we keep only one man permanently in the stable. We have the food weighed often enough each month to arrive at a pretty close estimate of what each cow eats. The herdsman is furnished with a form for recording weights of feed, and at the end of the month he hands into the office, the weights of the different kinds of feed which have been fed to each cow.

As to the price we obtain for our produce, our conditions are somewhat different from that of the average farmer. Practically all of the milk which is produced by our cows is sold to the College or Macdonald Hall, or to customers, who come to the dairy for it, and we charge them 4c per quart, which is, in round numbers, $1.60 per hundred pounds. That is perhaps more than double the price farmers receive for milk at the cheese factories and creameries this past year. We have paid to the farmers of Guelph this past year nearly $15,000 for milk and cream at the following prices: 20c a lb. fat for 8 months, and 25c for four months. If the milk tests 4 per cent. fat it would be worth 80c per 100 lbs; at 20c per lb. fat, 5 per cent. milk would be worth $1.00 per 100 lbs. For four months of the year, December, January, February, and March, when our Dairy School was in operation, we paid the farmers 25c a pound fat. In order to place our herd on the basis of the dairy farmer about Guelph, I have had an extra column inserted giving the value of the fat. We have arranged the cows in the order of merit according to the milk they produced. They might have been arranged otherwise. I am not at all satisfied with the record of a number of our cows during the past year. In fact, I do not suppose I ever could be satisfied. As soon as a man becomes satisfied there will be little or no further progress. The cow at the head of the list weighs 1,436 pounds. She will sell at $40 or $50 for beef at almost any time. She is what would be called of the beef type. Her dam was a short-horn grade. From very close observation I have come to the conclusion that the bony form of a cow has no more to do with her milk production than the color of a man's hair has to do with his mental capacity.

In my judgment the milk production of a cow depends first upon the inherited characteristics of a cow, and second upon the feed and care and training which she receives. If a cow has the inherited natural tendency to produce milk and is properly fed and looked after, she will produce milk irrespective of what kind of form she may have.

Coming to the cost of the feed, this is a point to which we have been giving special attention, during the past year. I found in previous years that our feed bills were altogether too high. I said to our herdsman, "You are giving these cows too much meal; try them with a smaller amount and note results. Then see if they will respond to more meal." If by giving two pounds extra of meal a cow has responded with only one pound extra of milk, it will be costing us about two cents for the extra pound, and the cows are not responding profitably. This is the fine point in feeding: to know how much can be given to a cow profitably. The cows at the bottom of the chart are nearly all heifers with the first calves, and have been milking for only five or six months, but the feeding is charged up to them for the whole year. You will notice that the greatest cost of feed for one cow was $32.23. In arriv-

ing at the profit per cow no charge was made for labor, as it would not be possible in our case to charge it up to each cow, but in ordinary circumstances the manure and by products, skim-milk and butter-milk would pay for the cost of the labor. Then we have sold the calves from some of the cows at from $5 to $40. Cow No. 65, in our herd, which gave profit of 99c in butter, we bought when about a year old for $100, and I think she would go into almost any show-ring in this country and win first place in her particular breed. I think so far as appearance goes—type of breed, dairy form, and all the rest of it, she will take a good standing. It is like looking at a pretty woman. There is an attraction about it that the average man cannot resist, and I dislike very much to sacrifice that cow because she is certainly a pretty cow; but if she does not do better in 1905 she will be sold to the butcher. Selling her milk at 4 cents a quart, however, shes has given a profit of $26.96. If we had to sell her milk at the ordinary price of milk delivered at the cheese factory or creamery, she would be in debt to us for her feed.

The second part of my topic is something with reference to dairy stables. Last year we took the floor out of our stable and renewed it. Previous to last year there had been a wooden floor, and I came to the conclusion that wooden floors in a dairy stable were practically impossible to keep clean, and so we put in a cement floor. First we went over the inside walls, mangers, etc., of the stable with a solution of bichloride of mercury, 1 to 10,000 parts of water, and then we sprayed on ordinary whitewash in which we put carbolic acid. I think every dairy stable should be gone over in some such manner once a year.

We have a feed passage down the center of the two rows of cows. We have done away with mangers, having come to the conclusion that the average manger is a nuisance and wholly unnecessary. It is practically impossible to keep them clean.

Cement floors of course, are not ideal floors. There are several objections to them. First, they are slippery, and there is more or less danger of the cows falling and hurting themselves when coming in or going out of the stable, and in order to overcome this difficulty we put on a heavy coat of saw-dust or shavings in the passage ways. But even when we do that there is danger of the cows slipping. Then there is always more or less danger of inflammation from the cows lying on the cold cement floor.

In order to overcome that difficulty we aim to use plenty of bedding. I prefer saw-dust or shavings to anything else, because if they are dry they are good insulating material. Taking everything into consideration, I do not think there is any kind of material so suitable for a dairy stable floor as cement, if it is well and properly laid down. I believe the time is coming when a man who has clean stables and clean cows will receive more money for his milk, and will make more money out of the business if he keeps everything clean, tidy and sweet, than the man who does not pay attention to the essential details. (Applause.) If you pay a man for looking after his cows and producing clean milk, I guarantee that 95 per cent. of the farmers will look after the milk better and keep the cows cleaner; but if you do not pay him any more than you do the man who sends in dirty milk can you wonder that he does not take any better care of it? In conclusion may I quote from the poet Schiller.

> "Does strife divide your efforts—no union bless your toil?
> Will truth e'er be delivered if ye your forces rend?"

In other words we must all work together if we are to find out and get the best results from the truth. (Applause.)

THE COOL CURING OF CHEESE.

By J. A. Ruddick, Dairy Commissioner, Ottawa.

There is probably no phase of dairying in Canada to-day which is receiving more attention than the question of the cool-curing of cheese and all it involves. As the Dairy Division has had some considerable share in awakening this interest, it would seem to be desirable that a fairly complete statement should be submitted as to the means which have been employed with that end in view.

In order to present the facts properly it will be necessary to repeat some things which have already been published under other auspices.

Our work has been almost entirely along commercial lines as distinguished from those of scientific research. In saying that I do not wish to be understood as under-estimating the value of the work of the scientist. The two lines of work are necessarily different. The scientific worker must seek the truth wherever he can find it, and cannot be influenced by considerations of cost, expediency or practicability; but those who would apply those truths in commercial undertakings must ever be guided by such questions as expense on the one hand and possible gain on the other. Thus when we come to the study of the influence of temperature in the ripening or curing of cheese we find that there are two sides to the question. The scientific investigator must determine the best possible temperature regardless of time, cost, or any other consideration, but commercial exigencies will decide how far the investigator may be followed by those who are trying to make a living out of the cheese business.

Now we hear of cheese having been cured with good results at a temperature as low as 40 degrees, and even much lower than that for experimental purposes. It is claimed, not without reason I believe, that some of the cheese cured at this low temperature have turned out better than others cured at moderately low temperatures ranging between 50 and 60 degrees. The improvement appears to be most noticeable in cheese made from tainted milk, and which develop bad flavours at ordinary temperatures. I doubt very much, however, if as low a temperature as 40 degrees will ever be adopted to any extent for curing Cheddar cheese, because of the following objections:

(1.) To maintain such a low temperature in a curing room would involve heavy expense for insulation and refrigeration.

(2.) The curing or ripening would be retarded so much that the cheese would not be fit to place on the market for several months.

(3.) There is more or less danger of cheese which are cured at extremely low temperature showing "soft rinds" after a few weeks storage.

Finally, there is some danger that we might over-shoot the mark in curing at a temperature of 40 degrees, which are intended to please the English consumer. If there is such a thing as a standard of quality for Canadian cheese it certainly is in our autumn makes, because "September" quality is generally admitted to be the highest point of excellence attained. It is of importance to remember that the mean temperature in Ontario and Quebec for the month of September ranges from 58 to 60 degrees. That is also about the average temperature of the curing rooms in England and Scotland where they turn out those Cheddar cheese which sell for a much higher price than ours do. Now, if we can cure our summer cheese under September conditions, there is no reason why we should not produce "September" quality throughout the whole season. You never hear of New Zealand cheese being classified according to month of manufacture, because the climatic conditions do not

vary materially in that country throughout the cheesemaking season. It is for us to consider, then, if these standards, the value of which we know, are as good or better for us to aim at than something else which has not yet been proved in a commercial way. After weighing all the evidence so far obtainable, I am of the opinion that a temperature of 60 degrees is the best one to recommend for general adoption.

When the cool curing rooms established by the Government were built, they were designed for maintaining a temperature of 55 to 60 degrees, and they have proved to be very satisfactory for such a requirement. Incidentally, we have come to this conclusion, that it is easier to maintain a steady uniform temperature at any point between 55 and 60 degrees than it is at any other point, either higher or lower. The reason for this is that we are able to take advantage of the cooling power of the earth, through the cement floor, which has a constant temperature of about 56 degrees, and being a fairly good conductor of heat acts as a regulator when other conditions tend to either raise or lower the temperature.

Having said this much in favour of "cool" curing as opposed to "cold" curing, I wish now to give you briefly some of the results and advantages of cool curing, with special reference to the operations of the Government cool curing rooms. I shall not weary you with the details of the construction of the buildings, as this information has been given before, and besides it is contained in a bulletin which I shall be glad to send to anyone who applies for it. A complete report on the cool curing rooms will be found in the Report of the Commissioner of Agriculture and Dairying now in course of preparation.

Cool Curing Rooms.

These cool curing rooms have been in operation for three seasons, and a total of 119,832 boxes of cheese, from 70 different factories, have been cured in them since they were started. This means that a large number of dairymen have had a direct interest in the results obtained, and the quantity of cheese has been sufficient to attract considerable attention from the trade, and to make a quotable feature of the markets. "Cool Cured" cheese are now frequenly mentioned in market reports as a distinct class or grade for which the highest price is paid.

The Saving of Shrinkage.

As the cheese were collected from the factories a number from the same vat from all the factories were set aside each week, and after being carefully weighed to 2 ounces, one was placed in the curing room, and the mate to it was put in a room in the upper story, where the temperature was not controlled, and was comparable to an ordinary curing room. The temperature in this room, by accurate comparison, was never higher than in any of the cheese factory curing rooms. On the other hand, the test room was frequently found to be cooler than the factories. I mention this because I want to show that the test is a perfectly fair one. When the cheese of the corresponding week were sold these cheese were again weighed, and the difference in shrinkage noted. From this difference the saving in shrinkage on the whole shipment was easily calculated. Table I gives the actual saving in shrinkage on all the cheese received, and the value of this saving at the selling price of the cheese. The value given is the amount collected from the factories.

TABLE I.

Curing room.	No. of cheese received.	Lbs. of cheese received.	Percentage shrinkage saved.	Pounds shrinkage saved.	Value shrinkage saved.
					$ c.
1902.					
Woodstock	11,657	906,560	1.58	14,327	1,424 13
Brockville	6,646	526,950	1.52	8,054	814 48
Cowansville	6,266	494,296	1.34	6,640	662 02
St. Hyacinthe	1,962	143,190	1.66	2,386	238 41
Totals	26,531	2,070,996	1.51	31,407	3,130 04
1903.					
Woodstock	14,334	1,128,442	1.40	15,823	1,604 49
Brockville	9,436	761,599	1.27	9,689	1,011 39
Cowansville	14,080	1,137,159	1.20	13,694	1,497 44
St. Hyacinthe	9,255	711,076	0.95	6,816	699 76
Totals	47,205	3,738,276	1.23	46,022	4,813 08
1904.					
Woodstock	12,526	1,007,245	1.40	14,163	1,164 55
Brockville	9,740	790,773	1.26	9,997	834 47
Cowansville	12,014	994,604	1.50	15,370	1,216 75
St. Hyacinthe	11,816	934,376	1.38	12,952	1,019 90
Totals	46,096	3,726,998	1.41	52,482	4,235 67

CONDITIONS WHICH AFFECT THE SHRINKAGE.

There are three conditions which influence the rate of shrinkage in a curing room. (1), the temperature of the air, (2) the relative humidity of the air, and (3) the percentage of moisture in the cheese. The length of time the cheese remain in the curing room is also an important factor in determining the amount of the shrinkage. The temperature in the curing rooms did not vary more than 2 degrees from day to day, and ranged from 55 to 59 degrees for the three seasons. The relative humidity was also a nearly constant quantity, averaging about 90 per cent, and varying from 88 to 94. The moisture in the cheese varied considerably, and we found some difficulty in persuading a number of the makers to make their cheese dry enough, because cheese for cool curing should be made quite as firm as for ordinary curing. On the other hand, both the temperature and the relative humidity in the room where there was no control of temperature, which we call the "testing room," varied from day to day and from month to month according to the weather. The highest temperature recorded in the testing room was 85 degrees, and during September it reached as low as 45 degrees, or fully ten degrees lower than the curing room proper. The relative humidity in the "testing room" varied from 70 to 88.

It will be easily understood, therefore, that percentage of shrinkage saved, from week to week and on the cheese from different factories, shows wide departures from the averages given in the table.

Table II. is a typical example of an individual record when the weather was fairly warm and dry.

Table II.

Relative shrinkage of two cheese made from the same milk and curd at different temperatures (unparaffined).

Curing temperature.	60-80 degrees.		58 degrees.	
	lbs.	oz.	lbs.	oz.
Green weight, July 8th	85	1	84	9
Weight, July 21st	83	12	84	4
Weight, August 26th	82	0	83	8
Loss in weight	3	1	1	1

The average saving of shrinkage for the three seasons has been 1.41 per cent., or over 1 lb. on an 80 lb. cheese. The actual value of the shrinkage saved, as based on the selling price of the cheese, was $12,178.39 for the three seasons. It should be stated in this connection that during the first season, (1902), the cheese were paraffined after the first month on the day they were received. Under these conditions the paraffining had considerable influence on the shrinkage. During the two past seasons the paraffining was not done until the cheese had been in the curing room 10 days or two weeks, and therefore had very little effect on the shrinkage.

Cool Cured Cheese Sell at Higher Prices.

That there is an improvement in the quality of cool cured cheese as compared with those which are ordinary cured in hot weather is now generally admitted. Interest in this point leads to the question as to how much the actual commercial value is increased by the improvement. During the past season a large proportion of the cheese from the cool curing rooms has been sold for 1/8 to ¼ of a cent a pound more than the highest price paid for ordinary cured cheese from the same district. The make of one factory was contracted for at ¼ of a cent advance on condition that the cheese were sent to the cool curing room at Brockville. Another important consideration is this: that many of the lots of cool cured cheese which passed as "finest," would certainly have been "rejected" if they had been ordinary cured, with the cut in price usual in such cases.

Several consignments of cheese from the cool curing rooms, consisting of mates, one cool cured and the other not, were sent to Great Britain last season. Andrew Clement and Sons, Glasgow, who received one shipment from the Cowansville curing room, disposed of the cool cured cheese in one lot and the ordinary cured ones in another, and got 2 shillings per cwt., (practically ½ a cent a pound), more for those that were cool cured. The same result followed a shipment to W. P. Sinclair & Co. from the Woodstock Curing Room, sent through their representative, Mr. T. B. Millar, London, Ont.

The following are extracts from some of the letters received in this connection:

From J. & J. Lonsdale & Co., Limited, Liverpool, September 9th, 1904:—

"We have examined the cheese in Hodgson Bros.' warehouse, and consider the cheese made at the cold curing station far superior to those made at the factories. If this system was generally established we think it would improve the consumption of Canadian cheese."

From A. Clement & Sons, Glasgow, September 17th, 1904:—

"We are in receipt of yours of August 30th, and have received the Cowansville cool cured cheese and shown them to the trade. We have had quite a lot of criticism on them and are pleased to report that it is all satisfactory, and the opinion is expressed that cool curing will do more for the Canadian dairying industry than any movement that has taken place during the last ten years. However, by next week I hope to send you a full report for official purposes."

Clement & Sons write again on September 28th:—

"*Report on Cheese ex Cowansville Curing Room*: *Condition*—There was great variety in the condition of the samples. Some lots were perfect, but many of the ordinary cured lots were heated and showed up badly.

"The samples were examined by practically all the best firms interested in the cheese trade, and the universal opinion was expressed that judging from the samples shown it might be confidently affirmed that:—

"(a) Cool curing during the summer months is a decided improvement over the ordinary method and improves the quality of the cheese not less than 2/-, and, in some cases, 4/- per cwt.

"(b) Paraffining in some cases is an improvement when properly applied on well-made, close-textured cheese, but does harm on mushy, soft and acidy cheese."

"We thoroughly agree with the above report, and indeed are so much impressed with the benefits of cool curing that if practicable we should like to see it made compulsory throughout Canada, believing that the universal adoption of such an improvement would be an enormous factor in increasing the consumption of cheese and, consequently, benefiting the whole dairying industry of Canada."

From W. P. Sinclair & Co., Liverpool, October 8th, 1904:—

Mr. T. B. Millar, London, Ont.,

"Dear Sir,—You will notice we have made a higher price of the cool curing room cheese than for the ordinary cured, also the detailed weights of the cool cured cheese are much more satisfactory than the ordinary cured cheese.

"With reference to the keeping qualities of the cheese there is no doubt in our minds as to which process is the best. We would far rather have cheese cured on the system advocated by the Government than the ordinary method now in use at the factories; not only is the weight preserved and the condition better, but the flavour is very much more satisfactory; this is the general consensus of opinion of all the people in the trade who have inspected the cheese in our warehouse.

"We trust the Government will be able to convince the factorymen as to the necessity of erecting cooling rooms answering to the description of those erected by the Government; we are sure it would not only be a benefit to the factorymen but to the receivers on this side, and help to insure a still higher reputation for Canadian cheese."

"Our own individual trade being for strictly choicest Canadian, we shall be pleased to receive any further consignments the Government may send us in illustration of these points."

Plans for Giving Effect to Cool Curing.

If the improvement due to cool curing is an admitted fact, the next thing is to consider how the cool curing of cheese can best be carried out in connection with our factory system. Three plans have already been tried to some extent:

(1) The shipping of the cheese from the factory to one of the existing cold storages within a few days after they are made.

(2) Central or consolidated curing rooms like those established by the Government, the operation of which we have been discussing.

(3) The improvement of the cheese factory curing rooms and the erection of an ice chamber in connection therewith to secure proper control of temperature and moisture.

Shipping Cheese Green to Cold Storage.

The first plan, while it may be better than leaving the cheese in an unimproved curing room for the full period of ripening, is only a half measure, and there are some serious objections to it. It is not practicable to ship the cheese from most factories oftener than once a week; consequently the oldest cheese in each shipment would be exposed to heat long enough to be permanently injured. If the injurious effects of a high temperature are to be avoided, the cheese must be placed in a cool temperature *within 48 hours* after they are taken from the press. Then again, to ship the cheese in a green condition to a general warehouse out of reach of the cheesemaker is to deprive him of the advantage of examining the mature cheese in order to study his work and correct defects which would not be discernible during the first few days. Serious consequences would follow in many cases unless there was some check on the cheesemaker's work. These two objections are sufficient to put this plan of shipping green cheese to a central warehouse out of the list of possible solutions of the cool curing question.

Central Cool-Curing Rooms.

While the central cool curing rooms established by the Government were never intended to encourage the general adoption of such a system, the plan has, nevertheless, a number of features which make it worth considering as a practical working scheme. They may be summarized as follows:

(1) The cheese in the central curing room are under the care of an experienced cheesemaker whose business it is to examine them carefully, and to report any defect at once. Having the cheese from a number of factories for comparison, he is in a much better position to criticize intelligently than the man who sees only his own cheese, and is obliged, as it were, to judge himself by himself.

(2) The factories are of necessity in the neighborhood of the central curing room, so that the makers have opportunities of inspecting their own cheese and comparing them with cheese from other factories. The spirit of emulation is thus fostered in a very pronounced degree.

(3) The cheese are better boxed and more carefully loaded into the cars because it is easier to get one man to do a thing right than to make ten do it.

(4) The central system facilitates the selling of the cheese and the proper inspection before delivery

The disadvantages of, or the objections to the central curing room plan lie chiefly in the cost of erection and operation as compared with the cost of improving and maintaining the cheese factory curing rooms. The comparative cost would vary according to locality, but on the whole it would cost rather more to build a central curing room than it would to fit up the curing rooms at the factories from which the cheese would come. If new factories had to be built, so that the whole cost of a curing room would be avoided, the relative cost might then be in favour of the central establishment.

As for comparative operating expenses, much depends on the size of the factories. In the largest factories the services of one man can be dispensed with when the cheese do not have to be taken care of or boxed, but this does not apply to the same extent in factories where only two or three men are employed. The cheese must be conveyed to the shipping point in any case, and it costs the patron just as much, and sometimes more, to haul his proportion of cheese as it does when the work is done by contract and he pays his

share. Indeed there is a great deal to be said in favour of the contract system of hauling cheese in any circumstances. The contractor is under the control of the parties who engage him, and he can be compelled to provide suitable waggons, always clean, and be held responsible in every way for the proper performance of his duties.

It will cost less to supply ice for a central cool curing room than it would to furnish the required quantity to secure the same results at 10 or 12 cheese factories. A given quantity of ice will waste more divided into several lots than it will stored in one place.

One of the most serious obstacles in the way of the adoption of the central curing room plan, where it might otherwise be practicable, is the lack of a spirit of co-operation among the factories, and some co-operation is necessary to make the plan a success.

The cost of operating the Government Curing room at Brockville for the season of 1904 will be interesting in this connection. The total operating expenses were $2,518.97. This includes $204.87 paid for extra heavy cheese boxes in excess of what was charged to the factories. There was another item of $49.12 for insurance on the cheese. Then there is the hauling of the cheese which amounted to $1,010.25. These items must be paid in some way no matter where the cheese are cured, and when they are eliminated, as they should be in this calculation, it brings the operating expenses down to $1,254.73. Deduct from this amount the revenue of $834.47 from shrinkage saved and it leaves a net deficit of $420.26 on operating account. Against this deficit there is the extra price for which the cool cured cheese were sold. Exact figures cannot be given for this increased value, but a fair estimate places it at $1,500. From this showing it is apparent that there has been a clear gain to the factories that sent cheese to the Brockville curing room during the past season of at least $1,000.

Improvement of Cheese Factory Curing Rooms.

A large number of cheese factory curing rooms have been improved and others partially improved during the past two or three years, and the indications are that it is principally along this line that the cool curing of cheese is to be carried out This plan does not disturb the existing order of things, and on the whole it would appear to be the one most worthy of recommendation. The necessary improvements can be effected with the minimum of expenses, and no extra labour is involved, either in handling the cheese or taking care of them. The results will hardly be as uniform as they are at a central curing room, and the average cheesemaker will have to learn a good deal about the control of temperature and moisture, the prevention of mould, etc., but these things will come in time. One thing I fear is that too many factories will be only partially improved, that the temperature and moisture will not be fully under control, and consequently the cheese from such places will bring discredit on the cool curing movement. The first requisite for a man who starts out to improve a cheese curing room is a clear conception of what he is trying to do. He must understand that there are *two* conditions which he must control if he would ensure success, and they are the temperature and the moisture in the air of the curing room. One is as important as the other. We have not been accustomed to pay much attention to the relative humidity in connection with the curing of our cheese. In the ordinary curing room where the temperature is about even with that of the outside air, there is not often any excess of moisture. Indeed, it is more

often too dry, causing the cheese to shrink excessively, and to show cracked surfaces in extreme cases; but when the air is reduced in temperature from from 10 to 20 degrees, as it is in a cool curing room, the relative humidity is increased very much. Then again in an ordinary curing room the circulation of air that brings in heat also removes the moisture which escapes from the cheese and which is represented by the loss in weight. It is obvious, therefore, that the insulation of the walls necessary to a proper control of temperature by stopping all circulation or passage of air must result in an accumulation of moisture unless some special means are employed to remove it. It is not sufficient to secure a reduction of temperature alone. Without removal of the moisture the excessive growth of mould cannot be prevented and the surfaces of the cheese are liable to be "soft" and show early decay. It is for this reason that it is recommended to have an ice chamber in connection with the curing room, to promote a circulation of air. The air passing over the ice is chilled, dried and purified before returning to the curing room. With such a system installed the air can be kept perfectly sweet and dry enough without any further ventilation. If the building is well insulated and is provided with a cement floor the temperature will not go above 60 degrees except in warm weather, but it will not do to depend on that alone.

The Growth of Mould on Cool Cured Cheese.

Some difficulty may be experienced at first in preventing the growth of mould on the cheese in a cool curing room. If the cheese are kept for a few hours, say over one night, in a dry place at ordinary temperatures, the surfaces become dry and there is very much less tendency to mould when they are placed in the cool room. Provision should be made for handling the cheese in this way. The cheese shelves should be thoroughly cleaned and disinfected with formalin every time they are emptied. When new shelves are procured it is an excellent plan to give them a good coat of boiled linseed oil put on hot. This prevents the wood from absorbing the moisture from the cheese and thus encouraging the growth of mould. The whole interior of the curing room, including ceiling, walls, floors, posts, and shelving, should be thoroughly scrubbed every spring with a solution of one part of bi-chloride of mercury to 1,000 parts of water. This will destroy all spores of mould, but care must be used in handling the solution on account of its being a very deadly poison. Many of the importers in Great Britain say that a little blue mould is not objectionable, providing the cheese has a perfect skin so that the mould will not penetrate. If the cheese get very mouldy in a curing room, however, they are apt to be very bad by the time they reach England.

Some Suggestions for Improving Curing Rooms.

There is so much diversity of construction in existing buildings that no instructions can be given for their improvement except in a general way. The ice chamber should be from one-quarter to one-third the size in cubic capacity of the curing room, according to the efficiency of the insulation used. Many of the factory curing rooms are large enough to allow of the ice chamber being built inside the present walls of that room. The first thing to do is to put a stone or concrete foundation wall under the building, then lay a cement concrete floor over the area of the curing room, and plaster the foundation walls on the inside with cement to give them the same finish as the floor.

The walls of the curing room should not have less than two thicknesses of matched lumber and two ply of good quality building paper both inside and outside of the studs. The spaces between the studs should be filled with planing mill shavings; otherwise more lumber will be required in the walls. In altering some old buildings it may not be possible to fill the spaces between the studding with shavings. In such cases the best plan is to set up light studs inside the present wall and finish with two thicknesses of matched lumber with two ply of building paper under the joists, and at least one thickness of matched lumber on the upper side. The spaces between joists should also be filled with shavings.

Double windows, with tight-fitting sash, each double glazed, are necessary. Windows should be as small as possible and placed at ceiling of the room.

The door of the curing room should be of the refrigerator style, fitted into a bevelled frame.

Insulation of Ice Chamber is Important.

The ice chamber must have better insulation than I have given for the curing room or there will be excessive waste of ice. The insulation of the ice chamber at the curing rooms has proved to be satisfactory. It consists of 7 thicknesses of matched lumber and 8 ply of building paper. The studs are "staggered," forming a one-foot space to be filled with shavings. The paper next the inside sheathing of the ice chamber should be what is known as damp-proof quality, such as "P. & B.", "Ko-Sat," "Hercules," "Neponset," or "Laminoid" brands. The other paper should be good quality building felt. Ordinary straw papers are almost useless for such purposes.

Patrons Should Help Pay for Improvements.

As practically all the benefits to be derived from the cool curing of cheese will go directly into the pockets of the patrons of the factories, it is only fair and reasonable that they should contribute a large share, if not the whole of the expense connected with the improvements necessary to secure a proper control of temperature in the curing room. In the strictly co-operative factories which are owned by the patrons the matter adjusts itself, but where the factory is a private or proprietary concern the case is quite different. The price that the patrons now pay for manufacturing is for a certain service, and if they are to get a better service, and receive a direct benefit thereby, they certainly should be willing to pay something for it. Unless the patrons take this practical view of promoting their own interests they can hardly expect the owner of the factory to do much for them. Of course competition will induce some factory owners to undertake the improvements at their own expense, but under such circumstances there is apt to be more or less pretence about it and cheese will be designated "cool cured" which are nothing of the sort, and thus the cool curing movement may be seriously discredited for a time. I hold no brief for the owners of factories, but I say this, that the present attitude of the average patron towards the factory to which he supplies milk is the most "penny wise and pound foolish" policy which he could possibly adopt. Instead of encouraging large factories where the price for manufacturing can be legitimately cut down and leave sufficient margin for the owner to enable him to provide decent buildings, properly equipped, and to pay the cheesemaker or buttermaker as the case may be, the wages

that he is entitled to, the tendency is too often in quite the opposite direction. It is astonishing to see so many farmers, intelligent enough in other respects, deliberately deserting a good factory to send their milk to some ramshackle, make-shift outfit which is a disgrace, if not a positive nuisance to its neighborhood, just because the owner has cut down the price of manufacturing a small fraction of a cent lower than the other. It is undoubtedly true that the products of the largest and best equipped factories, if they are properly conducted, do have a preference in the market sooner or later, and it would seem to require very little reasoning on the part of any patron to convince him that this is a perfectly natural result.

A MEMBER: At the end of four weeks is there no difference?

MR. RUDDICK: Yes, there is a slight difference.

A MEMBER: What would the variation be in these four cheese in that time?

MR. RUDDICK: In two or three months you would not notice any difference. We have noticed that when the cheese are about three weeks old there is a difference of six or eight days in the maturing of the cheese; there is not very much difference. The maturing of the cheese does not seem to be affected so much by reducing the cheese down to 60 degrees as it does when you get it very much lower. It has been claimed that cheese maturing as low as 40 degrees would take six or eight months, but when the temperature is only reduced to 60 degrees there is not a great deal of difference, while the lower temperature retards curing somewhat there is little more moisture obtained and that facilitates it.

A MEMBER: If the cheese sold from the cold-curing room sold for more money than those cured in the ordinary factory, I would like to know the reason why the patrons, who send their milk to the factory, did not receive more money?

MR. RUDDICK: You will have to ask someone who knows something about that. Of course part of the difference is shown in what we charge the factories. There was some $800 deducted from the factories sending to the Brockville curing room last year. I know the cheese did sell for more money, and if the patrons did not get more, that is another matter; there may have been some difference in the prices charged for manufacture.

A MEMBER: I took the four factories that sent to the cold-curing room and four factories that did not send there, and took the amount of cheese manufactured for four months of the year 1903, and I went to these different factories and got a statement from the secretary of each factory and the quantity of cheese manufactured and sold and the price, and I gave this statement to our secretary to figure out. And the factories that did not send to the cold storage room averaged to from $60 to $100 a ton more than those that sent to he cold-curing room. North Star was one of them. I think we lost from shrinkage more than we should have.

MR. RUDDICK: That is not the point. The point is that the cheese have been improved and have sold for more money. We are not comparing factories that have a cold curing room with factories that have not a cold curing room, and there is no sense in anyone arguing that cold-cured cheese are not worth more money. They are worth more money, and the factories that will do this work will have what there is in it.

A MEMBER: Where I believe the mistake was made is that this test cheese should have been kept in the cheese factory, and tested in the curing-room when eight days old. Our cheese were kept in this test room 21 days, and they would shrink three times as much.

Mr. Ruddick: The cheese were kept in the test room here the same time as they were kept in the curing-room.

A Member: Twenty-one days?

Mr. Ruddick: No, sometimes only four days. In every single case the cheese that were in the test-room were weighed at the time the sale was made, and at no other time, and it did not make any difference whether it was four days or twenty-one days. The cheese were weighed at the time the sale was made. With regard to the difference between the factories and the curing-room, we made very careful tests, and we found that there never was a single instance that the factory curing-room was cooler than the test-room, and several instances when it was the other way. We must be fair in this matter. I would be the biggest fool alive if I would try to put this thing on a false basis. My reputation depends upon it, and I want to put it on the fairest basis. What object would I have in trying to put it on a false basis? (Applause).

A Member: I got orders that in this cold-curing room in Brockville they would not let a cheese out in less than twenty-one days.

Mr. Ruddick: The cheese were at the disposal of the salesman. He could sell them any time he liked.

A Member: It was urged that the cheese should remain there fourteen days in order that they could go out in the best condition. In making a comparison of these factories did you find out the average test of butter fat? The average price per ton is governed a good deal by the difference of the milk, and in conversation with the instructor of the factories named by Mr. Stafford, he told me two of these factories paid less for the milk, Stanley and North Star, and the time the factory is running has a good deal to do with it. I put the cold-curing of cheese to a test by utilizing cold stream water. If you have an abundance of spring water cold-curing is not expensive. The curing-room has a cement floor. It is ten feet from a cold stream, and we have inch pipes running through the rooms, and by having the spring water run through these pipes, I was able to keep the temperature of that room below 65 degrees during the hottest day of the season, while other curing-rooms in the vicinity stood at 80 degrees. I claim there has not been enough attention paid by the dairymen of this country to cold-curing of cheese.

A Member: Regarding the flavor of cheese in this cold-curing room, I went into this cold-curing room one day, and Mr. Somerville showed me two cheese. One was kept eight or nine months, one was an excellent flavor and the other was very bad. He told me the one of the fine flavor was kept in the cold-curing room and the other in the ordinary room, and I want to ask if the bad flavors that developed in the one would develop in the other when when it was put on the counter of the groceryman in England? Will the cheese that is kept in the cold-curing room develop the bad flavors as soon as the other one?

Mr. Ruddick: No, never to the same extent.

Mr. James Weir: We know how to make the cheese if we can get a good price. We cannot make satisfactory cheese at the prices we are getting. (Applause).

ADDRESSES BY MONTREAL DAIRY DEALERS.

Mr. R. M. Ballantyne: When your cordial invitation was received, it said we were to limit ourselves to very short speeches, and I will confine myself to subjects that our Association has been taking up. One of the top-

ics that have occupied a good deal of our atttention is the matter of freight rates, and this is a matter that your boards have also been discussing. The rates to-day on cheese and butter are higher than the rates charged on any other commodity carried by the railways. They were higher before the recent advance, and during the past year the railways have seen fit to give them another advance, and in this section the advance amounts to something like 30 per cent. on the previous rates; although in some of the sections the advance has not been so great.

This recent advance was made about the time of the inauguration of the Railway Commission, and there are some people who say that the advance was because of the fact that when that Commission was created, the railways anticipated a little pruning, and, in order that the pruning might not do any harm, they advanced the rates so that they can be pruned. We feel that the rates are higher than they should be. Bacon is a perishable article, and requires rapid transportation and first-class cars, and the rates on bacon are only two-thirds of the rates on cheese and half on butter.

I notice that you have a Resolution Committee, and I think the matter of freight rates might be referred to that committee. Another matter that has engaged our attention, and which we have brought before the representatives of dairymen in the Quebec Legislature, is the question of licensing cheesemakers. I notice that you have in your programme a report of the committee appointed for the purpose of reporting upon licensing of cheese factories. I do not intend to handle that question of licensing cheese factories, but the question of granting certificates to cheesemakers is an entirely different problem. If this were done, it would give us a better class of cheesemakers, and we suggest that the granting of these certificates should be under the control of a board of examiners, who should examine the cheesemakers at a place where operation of making cheese would be conducted, so that the practical work would be done by the men. It would eliminate from the business a class of incompetent men who are reducing the price of making. I do not think there is any class of skilled work that is so poorly paid as the average maker who works six or seven months in the year for the average wage of a laborer, and does what he can for the balance of the year for a living.

We will not any longer make any serious effort to reduce the number of cheese markets in the country. We have done so in the past, and our efforts have apparently been received by the factorymen of this country as an effort to injure them, which it certainly was not. Our attempt to reduce the number of markets was, we believed, in the interest of the whole community. It has been a tax upon the merchants to attend to a large number of markets. It increased the travelling expenses and salaries and commissions, and this, of course, had to be finally borne by the factory people. The small markets were not representative, in any way, of large interests, and I think the factorymen would have been benefited very much by having larger markets consolidated. But as far as our Association is concerned, that matter will be left entirely to your own initiative so far as the future is concerned, and I hope the multiplicity of markets can be done away with.

The Chairman: I am sure we are delighted to hear from Mr. Ballantyne, ex-President of the Western Association, and a representative of the well known firm of Lovell & Christmas. We would also be delighted to have him see our secretary and the Resolution Committee, and give some ideas as getting up these resolutions.

Mr. A. W. Grant: I feel very much indebted to this Association for inviting me here to-day. I have certainly learned a good deal from the discussions. I think the Eastern Dairymen's Association is to be congratulated in having Mr. Derbyshire for their President, and I believe, that in his new position at Ottawa he will do a great deal for the dairy interests of Canada, if not for the world. (Applause.) It has often been said that there is plenty of room at the top, but there is none at the bottom. It is the superior quality of any article which makes the poor article saleable. A few years ago, a gentleman in Montreal said that he knew how to make rennet, and he made it without putting any salicylic acid in it to keep it, and it was sent all over the Province of Quebec, and the cheesemakers used it. It coagulated the milk, and made the cheese, and the cheese came on to Montreal markets all right, but in ten or fifteen days the cheese stank so that they could not keep it in the place. I had some sent back from England, and I put them in the warehouse, and the men would not work. I sent them over to the storage, and they would not take them in, and then I sent them to cold storage, and they did not know what they were getting and they cooled off the flavor. I believe the only way to get the superior quality of cheese is to have Government inspection, and that inspection should begin in the factories. In Montreal we are getting cheese, bad and indifferent cheese, all at the same price. I suppose I took in from 1,500 to 2,000 boxes, good, bad and indifferent. Many times they come there, and are inferior, but on account of the shippers wanting to fill their orders, they are accepted and are passed through at the best price; and at other times they are accepted because they are in a certain combination. Now, I ask what incentive is it to have a superior article, if one only gets the same price as another man gets for the poor article. I have a little scheme that I believe is workable, and I am very glad indeed, to see the Minister of Agriculture here with us this afternoon. I was figuring out last night that there were 2,700,000 boxes of cheese made in Canada last year, and I calculated that each cow would make about 3,000 pounds of cheese, and that there would be about 700,000 cows in Canada in the business, and the next thing would be to tax these cows, and if you tax these 700,000 cows 25c., it would pay working expenses of the instructors to inspect these cheese in the factories, and look after the milk, and after the well water, and everything else in that connection. There are about 5,000 cheese factories, and if we take about 20 factories to a syndicate, we get 250 syndicates, and allowing $700 for each syndicate we will have about $175,000, and one-half cent a pound on 2,700,000 boxes of cheese is equal to $1,000,000, and it would pay the farmers four times over.

I believe that every cheese and butter factory in Canada should have a license, and they should not have a license until they were fitted up for making cheese and butter properly, and every cheesemaker should pass an examination and have a certificate. I have been informed that fully 10 per cent. of the wells in Canada are cesspools. Under the present condition of making cheese there is no such thing as a really perfect quality, for the simple reason that some one patron will spoil the rest of the patrons' milk. In Normandy they are so very careful about the milk, that that will not milk into tin at all; they milk into earthen vessels. I was driving in the Cheddar Valley some years ago, and I asked my companion what a man was doing, and he said he was weeding. I thought he was picking up mushrooms, and this is the place where they make high-class Cheddar cheese that sells for 14c. a pound. I said that I did not notice any weeds, and my companion said, yes there was some there, and this land rents for $15 per acre. I believe there

is plenty of room at the top, and I believe the farmers of this country would be perfectly willing to pay a tax of 25c. a cow to get these advantages, and I believe they would be perfect fools if they did not.

Mr. Weiland (Co-operative Wholesale Society, Montreal): I am just going to take a little look over the past year. For many years you have not received so low a price for your dairy produce as the season that has just past, and I think it is very wrong to take a pessimistic view of the industry on account of this one year. Some people think the prices are abnormally low. Don't get that idea into your head at all. The prices which have been realized for the three preceding seasons have been abnormally high. The average price should have been perhaps a little higher than it was the past season, but it should not get up to the price it has been the previous three years. In fact, 1903 was disastrous. I think a great many of the farmers paid less attention to the care of the article, and a great deal of poor cheese came from the Brockville section. We had more loose cheese than we ever had before. They gave you a bacterological origin for it, and a scientific origin for it, but I think it had a dirty origin, and that there should have been more cleanliness observed. The same care should have been taken of the cattle as if the same price was being paid for the cheese; because you are not establishing a name for one season, but are in the business to stay. You are at the top of the British market and you should stay there, and you should strive to keep your high reputation so far as quality is concerned, and the only way to do that is to pay attention to the production of the article, and though the price does not seem high, if you take it year for year you will find it has been reasonable. Our Society have been receiving cheese from some farmers for over thirty years, they never bother their heads about what the market is going to be. They send in the cheese and they get the price from week to week. They do not figure for one season or two seasons, but they figure for a whole life time, and they stick to it, and their idea is to establish a firm record for quality. There is a pleasant story told of an old dairy-maid who always took the first prize at the dairy show, and many asked her what her secret was for producing these prize cheese. She said, "Watch me make the cheese. I never make them specially for the show, but when the time comes for the show I send my cheese to get my prize."

Take Danish butter. In 1881, they produced $5,000,000 worth of butter, and in 1903 the figures were over $47,000,000 worth. They stuck to the quality all the time. They did not think so much about the price, but they kept at the one thing, and kept the quality getting better. There is no industry that ought to be taken up more in Canada than the butter industry, and the natural associate for the butter industry is the bacon. To-day the bacon used in England that mostly resembles Danish is Canadian bacon. It is going forward all the time, and the time may come when the United Kingdom will look to Canada for her bacon very much in the same way as she does for her cheese. We will always be handicapped with regard to butter on account of being 3,000 miles away, because the Danish butter can come in there in a very short time, and we cannot overcome the distance; but if we keep at it, we will succeed in doing better year by year.

Mr. Hodgson: I think the fact of your bringing your inspectors to Montreal, and getting them in closer touch with the Montreal merchants, has been of very great benefit to the cheese industry. I admit frankly that in the way of technique with regard to the manufacture of cheese, the inspectors of this country can teach the merchants a great deal, but I am sure they will be the first to admit that all the technique in the world is not worth anything

unless the insructor knows what the merchants want, and I think this Association should be heartily congratulated in giving the merchants the first opportunity they have had of meeting the inspectors and spending a day with them. I hope these visits will be continued until all the inspectors of this country are brought in touch with the merchants at Montreal. We get cheese from all parts of Canada as far west as Winnipeg, and as far east as Halifax, and I must admit that whilst Brockville still has a high standing of quality, I think the time has come for a note of warning to be sounded about Brockville. The time was when 95 per cent. of the cheese bought off this Board could be classed No. 1, but I think this season, for the first time, it has run down to 75 per cent. Now, I do not want anybody to run away with the idea that there are no good cheese in Brockville, but the section of this country that is running Brockville more closely than ever is Belleville. (Applause.) Everybody admits that factory supplies have increased in price; you have to pay more for cheese boxes. Instead of the prices of manufacturing going down, it should be worth more money. If I want the work in my warehouse done efficiently, I must get the best workmen, and I cannot get the best workmen if I pay low wages. I must congratulate you on the meeting you have this afternoon. One thing that surprises me is how you can remember all you hear and put it into practice.

The CHAIRMAN: I am glad that the Montreal merchants have been with us this afternoon, and I am glad that we sent our inspectors to Montreal to get suggestions from them. I was heartily in sympathy with that, and I was delighted that our cheese instructors went to Montreal to visit the various warehouses and see goods, so that they could come home prepared to give the right kind of instructions. I was in Montreal at one time, and I inquired from Mr. Ayer why they wanted cheese colored so, and he said we will make them green if they will pay us a quarter of a cent more for the cheese. He said, "Make what people want, and they will pay for it," and the idea of sending instructors to Montreal was to find out the kind of cheese required there.

MR. GRANT: I intended to have referred to the cool-curing and waxing of cheese. I am a very strong advocate of waxing cheese. The British people want a soft meaty cheese, but they do not want a wet soggy cheese. The cheese can be made firm when it is waxed. The natural moisture is retained in the cheese, and when it is cut it will be a nice meaty cheese, and I know that the flavor and texture is very much superior. You notice that when a small Stilton cheese is put on the table, everybody takes a knife and puts it into the middle of the cheese. That is because that cheese is moist in the middle. If that cheese had been waxed, it would be the same at the side as in the middle. I believe the Government has done a very good act in having these cool-curing stations and in waxing the cheese. Some firms on the other side would like to have them all waxed.

MR. ANDERSON: We have a factory to-day that is second to none in Canada, and we are acting under the instructions sent out, and I am certain we have made money by doing so. We did away with the old factory and put up a new one. The factory I refer to is "The Mountain View Factory." As the inspector has said, some sections improved more than others, I think our section is one of those that improved.

THE CHAIRMAN: At last year's meeting in Belleville we warmed those people up in a way that they went to work and improved, and they have done better work this year than they ever did before. I am satisfied of that

from the reports I have received from Montreal. But don't lose track of what we are going to do in Brockville this year. Don't run away with the idea that you are going to beat Brockville in making cheese in 1905. We will be making the finest quality made upon earth; we will take no second place. (Applause.) We are delighted that Belleville did so well this year, and we take some credit for what you did on account of the meeting we gave last winter.

Mr. Publow: I am sure, from the enthusiasm shown by the dairymen of this section at this meeting, that we may look for better things from Brockville next year, and every section may reap some benefit from this meeting if they will put into practice what has been given to the people here to-day. I must say that Belleville and Prince Edward county led in the matter of improvement in regard to the factories, milk supply, and in the improving of the surroundings and conditions, and if Brockville Board will do as they did in Belleville last year, and pass a resolution to the effect that no factory will be allowed to sell cheese on the Board if it received milk from patrons who are known to keep their milk cans on stands within fifty yards of anything smelling foul, then you will do a great deal for this section. (Applause.) I would like to see Brockville at the top. There was a time when she deserved her good name. The boasting of Brockville section was the means of provoking other sections to do better work than they are doing, and while possibly no more poor cheese have been made here more recently than in other sections, yet these other places have made more of an improvement. There is just as fine cheese made in Brockville as in any section, but the proportion of poor cheese is more than it should be when you consider the intelligence of the people of this section.

Mr. Ballantyne: A great many of the factories of this section did not get instructors.

Mr. Publow: That is true; and while we have poor cheese from syndicated factories, yet the proportion of rejections are only one-third from syndicated factores. A fine cheese will suit any of the buyers in Montreal. They want a real fine Cheddar cheese, and they will all agree that it is the finest cheese they want,—a cheese that has a pleasant flavor, close and silky in texture, uniform in color, and finished in an attractive way. The chief trouble in almost all sections is cheese of bad flavor, poor finish and acidity.

The acidity is due to the milk being over-ripe when received at the factory, or the maker allowing it to become over-ripe after he receives it, and too much moisture left in the curd. You cannot lay too much stress on the cooling of the milk at home. You cannot have cheese of clean flavor unless you send cool, sweet milk to the factory. You make a great mistake in getting good cows and feeding them to the best advantage, and then letting your milk to care for itself. There is not a farmer in this country who will grow a good crop of corn and let it lie in the field and go to waste. Every crop you grow requires special treatment for proper curing, and milk is the same. Milk is the best crop you have on your farm, and you give it the least attention. Nearly every farm has a granary, and yet you will put your milk stand in the most convenient place to get the milk to it, regardless of its suitability, and in doing that you are not fair to the cheesemakers of this country, nor to yourself. If you want to progress in this business you will have to take better care of the milk, and I believe we will be forced to pass legislation to compel you to take out a license. I think the dealers in Montreal could do a great deal more than they are doing if they would only do it, and it would be a great deal better if they would buy our goods on their merits. (Ap-

plause). If you would do that it would correct some of the evils in a very short time, and it would be the best thing for the buyers of this country. Where is there a farmer in this country who has a good herd of cattle for sale, who has got to run for the butcher and say, "I have cattle; come out and see them?" No, sir. Butchers are looking after those cattle. The farmer owns this business, and if they would take a little more interest in it, it would be a great deal better for the community in general. If the quality of these goods is right, you will have very little difficulty in disposing of them. The instructor does not go to the factory to instruct the cheesemaker altogether. He goes there in the first place, in the interest of the patron, to see that you are well served. If the cheesemaker is not doing good work it is his duty to instruct him how to do it, if you will not give him the opportunity he cannot benefit you. Some of our instructors were used very shabbily. They were used more shabbily in the Brockville section than in any other part of the country. One farmer at the stand told the inspector it was none of his business whether the milk was clean or not. What good can an instructor do to that man? But if we leave them alone and pay them according to what their cheese is worth, it would make a good deal of difference. (Applause).

Mr. Bissell: We have heard a great deal about the inspectors here this afternoon. If you are getting cheese from a factory some of these inspectors will go to that factory and say they would not sell to you, and advise them to sell to somebody else, and I say that is wrong. If the inspectors would do their business in a business way, they would be more successful. I know several factories where the cheese was taken away from buyers and sent to friends of inspectors, and I can prove it; and you want to get at the bottom of it and have that thing stopped and get these inspectors to attend to their own business. If I am getting the factory's cheese all the time, and the cheese is not right when I cut these cheese, why should they sell them to another buyer? Mr. Publow has more than he can attend to. We have run the cheese business in this country for a long time, and I think there is just as good cheese in Brockville is in any other section, and I think we have farmers in the section who take just as good care of their milk as the farmers do in any other section of the country. When these cheese comes to Montreal for inspection they should be inspected properly, and they should not be asked to take these cheese away from the men to whom they have been accustomed to sell them. I have an inspector come to our factory, and I shall have one next year. We are trying to improve the cheese every year. I know we have had trouble in this section this summer, and you may call it yeast germs or what you like.

The Chairman: You can call it plain dirt. (Applause.)

Mr. Publow: We just want to know the facts. I am very sorry that I have to apologize for any instructor under me who has interfered in any way with the rules of the buyers. If there is any one thing they were told distinctly about it was to mind their own business with regard to that. They are not sent out to recommend one buyer before another, and it is as much as any instructor's position is worth if it can be proved he did that kind of a thing, no matter how good a man he is. He is there to improve the quality, and they can sell the cheese to whoever they like. I will investigate this matter to the bottom, and find out who this man is, and he shall certainly not be on the road another year if it is proved he did that kind of a thing. I quite agree that the people of Brockville are able to make the finest cheese as well as any other section. I know that they are able to do so, and I know

they will do it. Other people are just as keen to make good cheese as you are, and you will have to be a little more careful with the regard to cleanliness and pay more attention to the temperature. You will have to make a suitable stand for your milk and build it in a suitable place. Some patrons in this section of the country will not eat the cheese made in their own factory, because they know it is an untidy factory, but the same patrons will come to Brockville and ask the highest prices and kick if they cannot get it. It will pay every farmer to put in ice, and have the ice-house alongside of the milk stand. Cheesemakers should have more honor with one another. If cheesemakers will stand up for their own rights and say we will not receive the kind of milk that is not fit to be used, they will do a great deal better. There is no man who thinks more of the Brockville section than I do, but I have to say something to stir you up. You may have to issue licenses, and as far as I am concerned I hope every cheesemaker will be forced to take a certificate. It will not hurt a good man, and it will drive the poor men out, and it will be a good thing for the farmers of this country.

Mr. Hodgson: I think I have never been at a meeting of any association where there has been a more healthy discussion. I am very glad Mr. Publow gave these Montreal merchants a rap. We never pose as being perfect, but there is one element of danger in the discussion this afternoon. Some seem to think that factory inspection will cure the evil, but I will go further. There are two classes of men that I heartily sympathize with, the cheese buyer and inspector. There is not a merchant in Montreal who has not at some time had to pass cheese as best quality that were a long way from it; because they were passed as the finest by his buyer at the factory, and the buyer has acted in perfect good faith. No section has ever held such a high reputation as Brockville for making the finest quality of cheese. You must not imagine that because every factory gets the same price on the Brockville board, that they get the same price when they pass the Montreal inspection; and in connection with that inspection, I think there is one person who has a very hard position to fill, and that is the official referee, Mr. Woodard. I think the Montreal Association will agree with me in saying that we would like to testify our hearty appreciation of the labors and energy of our Dominion Minister of Agriculture, Mr. Sidney Fisher. It has been my misfortune that I am not exactly his way in politics, but although I am on the opposite side of politics, yet I am free to say that the Opposition, since I have been in Canada, have not done one-half the good for the dairying interest of this Dominion as the Minister of Agriculture. (Applause).

Mr. Derbyshire: I would like Mr. Woodard, the most absurd man in Canada, to speak to you for about two minutes. I would like to have you look at him, and see if you can find the snakes in his boots. (Laughter.)

INSPECTION OF CHEESE AT MONTREAL.

By A. W. Woodard, Official Referee, Cheese and Butter, Montreal.

We can, I think, boast of an improvement in the quality of Canadian cheese this year over previous years; but, while it may not be hardly right to say it, still I think it should be understood that the improvement is influenced almost wholly by the cool season, and not through better making and better factories for making and curing. Now, if I wanted to be popular

with you and keep you feeling well, I would tell you how much superior Brockville cheese are over the rest; but I am going to tell the truth, and in the strongest terms possible. Brockville section, you know, is a big one and covers a large number of factories, and must improve. I am not going behind your backs to say it. You need not publish it unless you want to, but it is the truth and well borne out by facts. I don't mean to tell you that you are making poorer cheese now than you did ten years ago, but you certainly are not making any better; and the fact that other sections that were away behind you have gone ahead, makes it appear much worse for Brockville. Now, I hope this is enough to put you to thinking along this line, and thinking will cause you to act. Let us come down to the chief defect.

The following table will give you a very good idea of the defects in your cheese as found on inspection at Montreal.

Cheese Inspected.

	May	June	July	Aug.	Sept.	Oct. & Nov.	Total.	Percent.
Inspections	42	167	292	204	87	137	929	
Not clean	19	53	108	67	32	38	317	34.1
Off	7	27	64	60	24	9	191	20.5
Fruity	.....	8	27	17	13	20	85	9.1
Rancid	8	12	10	18	6	7	61	6.5
Acidy	15	51	135	90	18	25	334	36
Open	3	58	88	43	17	22	231	24.8
Weak	5	33	25	53	29	51	196	21
Loose	2	52	63	30	19	38	203	21.8
Mealy	.....	6	42	20	.....	.....	68	9.3
Gassy	.....	3	43	27	6	1	80	8.6
Pasty	1	1	4	5	2	51	64	6.9

List of defects under 6 per cent.: Dry, turnipy, mottled, cracked surfaces, sweet, porous, bitter flavor.

Cheese examined October to December, 1903: Fruity, 41; not clean, 56; off, 14; rancid, 11; acidy, 61; open, 76; loose, 66; weak, 65; pasty, 57. No. of lots examined, 254.

, October and November, 1903: 24 per cent. against 18 per cent. same month this year. 22 per cent. not clean against 27.5 per cent. same month this year. 26 per cent. loose as against 27.7 per cent. same month this year. 26 per cent. weak as against 37 per cent. same month this year.

Broken Cheese Boxes.

The question of broken cheese and butter boxes is a subject that has engaged the attention of all concerned in the manufacture and handling of cheese. I think I am quite within the limit when I say that poor boxes do more to lower the price of Canadian cheese than any one other agency. Perhaps this will require an explanation to some, although to those engaged in the export trade it is plain.

In England, should a line of cheese be offered for sale that did not present a good appearance, the buyer who might be looking for fancy stock would pass them by, and, if he is persuaded to examine them he is at once prejudiced against them because of the bad appearance, and will be far more critical in his examination than he would be if the boxes were fairly

clean and whole. Therefore, you will see that a good box always gets the preference, and many times it is just the redeeming feature that makes the sale.

A man comes to me and says, what makes so many poor boxes? I answer, "The lack of money to pay more for a better one;" and such is the case. In this advanced age, the purchasing power of money is not what it was ten years ago; in some instances it requires $1.50 now for what $1 would do then. Now, while the cost of living has been going up, the price for making cheese has not advanced, and in many cases has gone down, so that the cheesemaker, having to pay more for the support of his family, has less to use in buying furnishings, and to make both ends meet. He goes to the boxmaker and says, "I cannot afford to pay 12 cents for a box this season; you have got to furnish me with a box at 11 cents; and the boxmaker, in order to do this, must make a lighter and cheaper box. This is why we are having so much trouble with broken boxes. You will perhaps say, "Should we pay more would we get a better box?" To be sure you would, if you insisted. Of course the boxmaker would gladly give you a better box for more; but if the box does not suit, send it back and demand that he live up to his contract. Now, to show that you can get a better box, if you will only ask for it, and pay for it; you have only to take the record of the box sent out from the different Government cool-curing rooms. Mr. Ruddick insisted on having a first-class box, and I understand he had to send the first lot back before he got it, but he got them at last at an advance of two cents per box over the regular price, but it pays as records will show. Some will say, will we get more for our cheese? Perhaps not directly, but with a good box you will hold what good name you have got, and get the preference over all poor boxes.

Now, I made it a special work to get the percentage of broken boxes from the different cool-curing rooms, and the percentage shows four less. Their cheese are mostly all shipped in iced cars from the curing rooms. So much to prove that if you make an effort to get good boxes, you can do so, and as results show it is worth while.

Now, some of you, and perhaps all of you, will be curious enough to want to know, as I did, what part of the box was found most frequently broken. A box has three parts; covers, sides and bottom. When a box is broken, some of these three, or perhaps two of the three parts will be broken. I have, for the last two years, been gradually collecting evidence along this line. Whenever I saw a pile of cheese on the wharf, whenever a box was broken, if it was the cover, side or bottom, I would mark it down. This I would do whenever I was on the wharf and had time. I also took the name of the factory, and note the section they came from, so I would be in a position to point our particular lot, or section, if necessary.

Results Showing Breakage to Cheese Boxes.

	Previous to Sept. 15th.	After Sept. 15th.	Total Results.	Special Box.
Covers	48.6	37.2	42.9	35.6
Rims	33.0	45.4	39.2	10.1
Bottoms	18.4	17.4	17.9	54.3

Here are the results of the work. I might say also that I was not the only one who took these facts. I also instructed the inspectors who see the cheese every day, as they are delivered to the steamship to do the same. While that I have here includes the result of their work along this line, yet I may say there was scarcely any difference. Now, I have given you the results of the whole, but let me divide it up into seasons, and I will show you different results. First, let me take the result up to September 15th. This would cover nearly all the summer cheese. You will notice here that the result shows the breakage among the covers were far more than the sides or bottoms; and, in the fall, from the first of October to the close of navigation, we find this to be the result. Now, you may ask, why is this? It is because during the summer month, the cheese, through the action of the warm weather, spreads and fills the boxes; and, whenever you find a cheese fitting the box snugly, you may be sure you are going to have fewer broken boxes.

I have one more particular regarding this box question to discuss, and then I am through. In looking through the different lots critically, my attention was called to a lot that had an unusually large amount of bottoms broken. On inspecting this lot more carefully, I notice they were of a specially made box. I therefore instructed the inspectors to look for them (explaining the nature of the box), and report on it separately, which they did, with this result. These you will see have an unusual amount of bottom broken. Now, you are anxious to know what kind of a box is this. I have one here. You see this is a very nice box, smooth, fairly well nailed, and looks well. I have shown you that the part of the box that needs to be strongest is the cover, and if you make the bottom similar to the cover, you make the box twice as weak and liable to break as the ordinary box. This is just what happens in this box. The bottom is made similar to the cover, only weaker; in this the rim is narrower. I have not the slightest doubt that the man who made the box had a good motive, which was to cheapen the make, and thus give the maker a cheaper box; but, by so doing, he has made the box more liable to break. Again, this particular box is very easily broken when loading into the steamships. There are several ways of loading cheese into the holds of the steamships, but the system that is most liable to break this box is the chutes. To land the cheese into the ship, chutes are arranged with a brake, and as the cheese slides down it is checked and almost stopped, by means of the brake. Many and many a time, and the inspectors will tell you the same, I have seen the bottom break off, and the cheese continue on down into the ship, while the bottom would be held in the chute. The sudden stop of the cheese was too much for the rim, and it gave away.

So much now for our cheese trade. Canada butter has made some advancement during the last few years, but there is a good deal to be done yet, and I believe that there are agencies at work to-day, that are doing, and will do a great deal to undo what progress has been made. Until we are in a position to make more butter, and in large central factories, we cannot hope to attract very much attention than what we have already. We have the cheese trade in our hands practically, but our output of butter is so limited, and finest is still more limited. Still more, the customers on the other side are not sure of getting what they want each week, consequently are not steady buyers of Canadian butter.

There is much to be done before we can expect to take the first place with our butter trade. But, don't think that the Dominion Government can do what is lacking, for they cannot. They have done almost all that

lies in their power to do—subsidized refrigerator service, cold storage chambers, subsidized steamships for cold storage, and putting on inspectors to see that the services was and is continued as per contract, with the companies.

Now, what should be done, and must be done, is for the maker or factoryman to see that the refrigerator is kept as cold as possible, and to do this sufficient ice must be put in when it is available, and it should be seen to that the ice is put in the chamber every day. I would propose that a committee be appointed to see that this is done, this committee to be composed of patrons of the factory; one to visit the creamery every morning, and to take the temperature and see that sufficient ice is put in each day. If this is done, there need not be any trouble about temperature. For we know by practical experience that a sufficiently low temperature can be maintained if properly looked after. Don't think the refrigerator cars are for the purpose of cooling your butter, for it is only to keep it at the condition it is delivered to it. In many cases we have actually have had butter colder when delivered at Montreal than when delivered to the refrigerator car at the point of shipment. Look well after the refrigerator at the creamery, and have your butter as cold as practicable, and the refrigerator will do the rest.

Mr. Ruddick: We paid two cents more for these strong boxes, and I wanted to find out whether we got the worth of our money or not, and we had an inspector pay particular attention to these cool-cured cheese. We put extra heavy boxes on them, and they reported only two per cent. of broken boxes, and other cheese landed with twenty-five per cent., sometimes forty per cent. of broken boxes.

REPORT OF COMMITTEE ON LICENSING AND REGULATING CHEESE FACTORIES AND CREAMERIES.

Mr. John R. Dargavel presented the following report:

To the Dairymen's Association of Eastern Ontario.

Gentlemen,—We, the Committee appointed at the last Annual Meeting of this Association to collect information regarding the advisability of recommending to the Legislature of this Province, the passing of an Act for the Licensing and Regulating of Cheese Factories and Creameries, beg to report that while we have collected considerable information favorable to the adoption of the principle, we are not yet in the possession of sufficient information as would lead us to take the responsibility of immediately advocating the adoption of the measure, but would respectfully ask for further time to gather evidence in this important matter.

J. R. Dargavel,
R. G. Murphy,
H. Y. Glendinning,
G. G. Publow.

I may say that I had intended to speak on this question at some length. Personally, I am of opinion that it would be to the advantage of the dairymen of this Province to have an Act of that kind introduced, but some of the members of our Committtee thought that it was such an important question that it would be better to move slowly, and in deference to their views I have consented to leave the matter over for another year.

DAIRY ECONOMICS.

By Prof. H. H. Dean, O. A. C., Guelph.

After a humorous introduction the speaker proceeded to say: It is not my intention to discuss economics in its particular and more scientific aspect. Economics have been divided into three classes: Pure Economics or the Science of Exchange; Social Economics which deals with problems of Society; and National Economics which deals with the tariff, etc. I leave this for men who are specialists in this particular line to deal with. I want, in the short time at my disposal, to deal more particularly with those many questions which affect dairying. It has been stated that money makes the mare go, and the cow has been furnishing considerable of the money to make the mare go, and the more cows we have and the better cows we have the more money we will have.

The science of making money in dairying lies in the application of the best and most scientific labor to the natural products in the soil, with the least expenditure of capital possible.

You have no doubt wondered why it was that a man keeping cows and sending milk to the cheese factory or creamery and getting $20 or $25 per cow, could possibly make any money. There must be money in it or this man could not carry on the business year after year in this country. The reason he makes money is that his labor costs him little or nothing. The man who is selling milk to the cheese factory is drawing upon the capital invested in his soil, and sooner or later he is bound to deplete the capital invested in it. Theoretically, butter making should enable the farmer to make more money out of his farm; because it takes practically nothing from the farm. I look for a very decided change in our methods of dairying in the very near future in the Province of Ontario. Instead of making a large amount of cheese and small amount of butter, I expect in a few years to see that reversed; because sooner or later the capital invested in farms will be more or less exhausted and the farmers will have to turn their attention to that branch which does not exhaust their capital.

I want to ask the people of this city who are buying milk if it pays to buy it for five or six cents a quart if it is not sanitary milk. In many cases it is not, and in many cases it has been diluted with water or preservatives of various kinds put into it. I had a sample of milk brought to me which gave lactometer reading of 18.5 and tested 1.8 of fat; in other words, it was half water. I told the lady she had better tell the milkman that if he was bound to put water into his milk he should put in good water; because from the flavor of the milk I was quite certain that the water that he was putting into the milk was not fit to drink. Not long ago I had a sample of cream sent that was bought in one of the largest cities in the Province of Ontario, and the person who sent the sample said the cream would not sour in the hottest weather if she kept it two or three weeks. We had it analyzed, and it had in it a large percentage of formalin, and that according to one of our best authorities is a dangerous poison, and should never be used as a food preservative. Recently I clipped the following from one of the Toronto papers: "Twelve cases of typhoid fever in Doncaster and four in Toronto among families served with milk by a dairyman near Chester attracted the attention of the health officers. Investigation showed the dairyman had a case of typhoid in the family, and that the well he was using was contaminated." What is the average cost of a case of typhoid

fever? I do not think I exaggerate when I say $100. That will pay two cents extra for 5,000 quarts of milk, or an extra cost of two cents a quart daily for seven years.

I hold that people in towns and cities are not half careful enough about the milk which they use, and it would pay them in dollars and cents to pay more for their milk and get a better quality. Every town and city ought to have a competent inspector who knows how to test milk, and who is competent to go out into the stables and to the farms and give instruction, and thus help to improve the quality of the milk which is supplied to our towns and cities. It is unfair to a man who takes extra care of his cows and milk that he gets no more per quart for it than the man who sends dirty milk to the factory, and there will be very little improvement until that state of affairs is changed; and if that be true in connection with our factories and creameries it is doubly true in connection with our towns and cities.

I want to point out three or four simple rules for handling milk and cream in the house. Milk and cream should always be kept in a tightly stoppered vessel. In the majority of houses you will find the milk poured out into a pitcher or pail and allowed to stand in the pantry or refrigerator or some other place where it takes in all kinds of flavors. A great many people, especially when they have company, are very anxious to have it thought that they have large supplies of cream, and they will set a pint pitcher on the table and perhaps not one third or a quarter of this is used at the meal, and the room being warm, the lactic organisms are developed rapidly, and that milk is emptied into the bottle with the rest of the supply with the result that it all soon becomes sour. I think it is much better to put a small amount on the table not more than will be used up at the meal. Milk from a sick room should never be taken into the general household, and it should never be put upon the table after being left in the sick room, because milk has every requirement for the development of those organisms which multiply at a marvellous rate of speed, and after leaving it in the sick room for a short time it becomes completely seeded, and that is the reason why a great many diseases are spread. A great many people will take a spoon out of a dish containing sour milk and put it into a pitcher of fresh milk. A small amount of sour milk will soon set fresh milk souring.

A man who sells milk which is dirty, or which is produced from cows kept in an uncleanly manner, or into which preservatives of any kind is put, should never be allowed to practice the dairy business. There ought to be applied to him the kind of law they have in the Southern States where a gentleman was brought before a colored magistrate for killing a man, and stealing a mule. He was brought before a colored magistrate in a town near the border land of Arkansas and Texas, and the magistrate told him he could have either kind of law, Arkansas law or Texas law. The man said he would take Arkansas law. "All right," said the magistrate; "In that case I'll hang you for killing the man, and let you go for stealing the mule." The poor fellow thought for a while, and said, "I guess I'll take the Texas law." "In that case," said the magistrate, "I will hang you for stealing the mule, and let you go for killing the man." I think that law should be applied to the man who sells unsanitary milk. (Laughter and applause.)

In connection with our creamery and cheese factory work we are making the very best use of the fuel at our disposal. When I found that our fuel bill for the past year was over $1,200, I concluded that there is something radically wrong when it requires that amount of money to buy fuel

to run a dairy department. We began looking into this question, and we changed the boilers, and changed the brick work of the boilers, and we have it now so arranged that every particle of exhaust steam is used either for heating the building, pasteurizing cream or milk, or making hot water, and we expect by these changes to cut our coal bill nearly in two. In many cases the exhaust steam is allowed to pass out of doors without any use being made of it whatever. I am satisfied from our past season's experience that we waste a great deal of time, and a great deal of fine quality of our butter, in the ordinary ripening of cream. During the past year we have not ripened our cream in the ordinary sense of the term, and our customers in Toronto, and more particularly the ladies who came in this fall to the Macdonald Institute, have told me that they never ate such butter in their lives; and if you see the quantity that they use at the college you would be quite convinced of the fact that they certainly relish the butter which they receive. The longer you keep the cream for any purpose whatever the poorer will be the quality of your product. There are some disadvantages, but the advantages counterbalance the disadvantages to such a great extent that I am satisfied that is the method of butter making which should be adopted.

The plan originated at the St. Hyacinthe Dairy School, and I think Mr. St. Clair, the Superintendent, deserves every credit for it. The plan adopted is to put a culture or starter directly into the cream after separating the churn at once. We have been making some experiments by churning and pasteurized cream directly after pasteurizing and cooling, without any culture and while our experiments have not been sufficient in number for me to say definitely that it is to be preferred, I am inclined to think it is possible to make butter of a fine quality according to that plan

We ought to make better use of our skimmilk at the creameries, when we consider that skimmilk is one of the most valuable foods for mankind, and while it is practically wasted it is worth as a food from 50 to 75 cents per hundred pounds. Skimmilk sustains the growth, and keeps a person in healthy condition.

You will perhaps have noticed that recently a French scientist has discovered that an organism in the sour milk is the organism which fights against those in the human body which cause death, and so the time will probably come when we will discover organisms in connection with drinking of sour skimmilk or buttermilk; so that if you drink a sufficient quantity of it and start soon enough in life you will live forever. (Laughter.) Whatever may be the explanation, I feel satisfied of this, that a pint of our good buttermilk is worth dollars in medicine; that we don't use enough buttermilk; and we ought to sell every pint of it at five or six cents a pint; and that if the people of this country were aroused to the food value of buttermilk there would be such a demand for it that our creameries could not supply it. We ought to be making money out of it, and we are wast-

There are men who are wasting valuable foods in making rennet tests and hot iron tests when they might use something that would not cost them one hundredth part as much.

We heard this afternoon of the value of ripening cheese at a low temperature. Our experiments clearly corroborate those that have been made by the Dominion Department of Agriculture except in two respects. First, the object of our experiment was to find out what temperature would give us the best quality of cheese regardless of cost. We were not experimenting from a commercial standpoint. We were trying to answer the

scientific question, "What is the best temperature for ripening cheese." All our results point to the fact that the finest quality is obtained by ripening at a temperature of about 40 degrees. I am not saying that is the particular temperature, but it is the best temperature. The second point is that there is no difference in the time required for ripening cheese at 23 or 40 degrees. There is very little extra time required as compared with ripening at 50 or 60 degrees. A great many men will not believe that, but it has been found that the chemical changes which go on in the cheese occur irrespective of temperature after the initial period of from four to six weeks.

Does it pay us as dairy farmers to keep cows that do not produce a sufficient quantity of milk to pay for their feed? Does it pay us to produce any but the finest quality of milk out of which may be made the finest quality of butter and cheese? The following article appeared in one of our papers: "We do not advance intellectually. Small principalities in Europe put us to shame in this regard. Belgium, Holland, Norway, Sweden, and Denmark contribute proportionately to the thought of the world, while our minds are centered upon the export of butter and cheese." I consider that a slander upon the Canadian people. By inference one would judge that the reason they contribute to the thought of the world is that they do not make any butter and cheese, and that their whole attention was centered upon producing thought. But I tell you it is because these people do make butter and cheese that they are able to influence the thought of the world. If you go to these countries you will find that it is because of their dairy productions that they are able to produce men in Denmark such as Thorwaldsen and Andersen. It is said that the people of Holland are richer according to population than they are in any other country in the world. Why? Because they are in the dairy business, and they do not have to dodge round the corner to get away from a man they owe a debt to, and they have time to do some thinking.

Professor Dean then quoted a poem on cheese written by one of the pupils at the Dairy School, which concluded as follows:

"I am made especially for the Englishman,
And I am bought and sold by our beloved Dan."

(Great applause.)

The CHAIRMAN: They evidently learn something at the Agricultural College besides making butter.

THE DAIRYMAN'S OPEN DOOR.

By Hon. JOHN GOULD, AURORA, OHIO.

The preparation of this address has impressed me with fact that it may be fatal to genius oftimes to announce the text in advance of the sermon, for when I came to look up the statistics relating to the dairy, in the Dominion and the United States for 1903, and see how it was in addition to these countries, encompassing whole continents, and in its zeal outstripping the oldest of the industries, I was about ready to believe that the dairyman did not half so much need an open door, as to have some hold him from overexerting himself; and attempting to signal Mars to inquire about their cow pasturage and foreign markets. Combining the dairy reports of the Dominion and the States—for thank the Lord we are thoroughly

annexed in thought and purpose in magnifying the dairy industry—we find an annual income of more than three-fourths of a billion dollars, the result of over six million people giving the best thought and work of their lives to it, and knowing no turning back—always to know the best and latest, and profit thereby. We have a spectacle of persistent purpose carried on without faltering, through all degrees of financial sunshine, and storm; through evil as well as good reports; a faithful holding on, worthy of all praise and compliment; and I suspect many a dairyman who has surmounted all difficulties, and reviews the conquests of his dairy compatriots for the last century, is ready to believe that to be a dairyman in truth, is to be as great a man as the champion of a football game.

With all the arrays of figures it would seem as if there was no need of other open doors, but if we look carefully into the little contributions that go to make up this stupendious aggregate, we will see that there is great need of an open door for thousands of dairymen, and a stimulant given to put them through it. So if I say nothing new in this address, and restate many things, remember that six out of ten dairymen need admonition, exhortation, and a few a close approach to excommunication, to bring them into a realizing sense of their lost condition; and the other four are not hurt by hearing dairy gospel reiterated, for it is in the reiteration of old truths that any gospel is brought to bear upon humanity, and its presentation finds lodgment.

At the outset we are confronted with two pictures of the dairy industry, in direct contrast, and both proven with figures that never lie or had not ought to; and while this has application in the States, it may possibly have counterpart over in the land of "Our Lady of the Snows". Our last figures show that for the 18,000,000 cows we have listed in the States, the best information places the sale of products of milk at $605,000,000; practically $33 per head, and the average milk production is placed at a few pounds over 3,000 lbs. per cow. So to make the figures come out even, the market price of that milk must average $1.00 per 100 lbs. for the year.

Now, it is a gen rally accepted statement that the feed cost of keeping a cow is not far from $3 per month, say $35 per year, or $630,000,000 for these cows. Now on these cows there is a full 10 per cent. depreciation in value, losses, taxes, etc., and at least 70,000,000 acres of $40 per acre of land, labor, horse flesh, and wear of wagon tires, etc., so one sees at a glance that the dairy was far from self supporting; and, indeed, in some cases the owners paid in some way about $8 per cow for the pleasure of associating with her a year. Over against this is this look through an open door to the dairy that has to millions been their deliverance from bondage by the entering through. From the days of the Puritans, the dairy has been an accumulating force on the farm, and has been a conspicuous factor in the development of vast reaches of the northern and western States. In all sections where the dairy has been a factor, the development has been the most rapid and substantial, and the dairymen have been the first to pass from under the pinching hand of want, and up to to conspicuous prosperity. They have always had something to sell for money every day in the year, or readily exchange for other commodities which were essential. No dairyman ever went hungry, or failed of having cream in his morning's coffee. Farms have been paid for, and good farm houses erected, children educated, and married off; and the sons-in-law started in business. The gospel has been preached, the parson paid, and time taken to do one's duty as a citizen. It is a notable fact, that in the dairy districts, the savings banks and other banks carry the largest de-

posits; and two years ago when the Foris Bank of Ohio in a strictly rural dairy community failed, it was revealed that these dairymen were relieved of over a million dollars, and five other banks in that same county carry a million more, and over three million had been loaned to the banks of Cleveland, and this by farmers whose dairies are bringing them into debt each year. What about these two open doors. Both doors turn on the same financial hinges, and still one seems to turn out, the other in.

But what about the open door through which we first looked some forty years ago, a door opened by those old heroes Arnold, Farrington, Williams, Ballantyne, and a score of others, followed on later by those who laid bare nature's secrets, and out of chaotic reasoning and guess have evolved a science that has astonished the whole world, revolutionized the whole industry from centre to circumference, and calls to its service to-day the brightest galaxy of scientific investigators and inventors possessed by any industry under the sun. It has built up for itself a reputation and a financial foundation and contributing support that has no equal in the world. This has not been confined to Canada or the United States. Your dairy industry has travelled east to the sea, and even made the isles of the St. Lawrence Gulf dairy Provinces. It has travelled west to the great prairies of Manitoba, and from thence to the very ocean itself, in a line of creameries that cover the very late trails of the Indian and Buffalo, and it would not astonish me to hear that in a year or two a new door would open, and this Association be invited to hold an annual meeting up in the Dukobor Province at Yorktown, with the usual reduced railway and hotel rates.

The dairymen of the new hemisphere unknowingly opened the door of modern dairying in many another country. With western ideas Denmark has developed a great dairy industry. She has in turn given us the separator, but the fellow on this side of the sea has developed it out of all semblance to its original patron. Holland has made great strides, insomuch that in the last Consular report, I saw she was making besides cheese sufficient for all the naval artillery of the world, 428 pounds of butter for every cow and heifer in the kingdom. Sweden is making great strides. Ireland and Finland are also building American equipped creameries, and on the other side of the globe, Australia, New Zealand, and the Argentine Republic are competitors of no mean repute, with the advantage that they have the warm support of an opposition summer. When we are in cold storage they are making their best crop of hay and dairy produce, and refrigeration puts their butter and cheese into the European markets at the very time we got on our fur coats, and in convention assembled plan what we will do next summer.

Whence cometh all these methods, means, inventions, larger—ever larger—outlooks for the dairy? Underneath it all is an unseen but all influencing power not marked by visible colors that constitutes an increasing, accumulative force, that amounts to a recuperative energy, like that of the sun; ever giving off a self-sustaining, increasing, energizing influence, that ever pushes the dairy industry along, and takes with it the other farm industries, in the main; so that a community that takes hold of the dairy with intelligence, builds more strongly, better and more symmetrically than do they who neglect to bring to their aid and support the dairy, and so find ever increasing beneficence, because of the faithful presence of our foster mother—the cow. Here comes the application of our text, that of "the open door". Because of our array of dairy attainment, it does not follow that there are no new things to be found out, and no new methods

to be attained and put in practice. We will never reach a point where we can relax our efforts, without an actual falling back, a stagnation ensuing, and stagnation will ruin any dairy prospect. The story is told of an old Irishman who was forced to choose between retaining his eyesight, and give up whiskey. "Nothing will save your eyes but strict temperance," said the doctor. "Well," replied Mike, "I'll stay to me whiskey. I do believe that I've seen about all that worth while looking at this wurld." We dairymen have not seen near all that is worth while in dairying. This very extension of the kingdom of the cow spoken of, the opening of the dairy door in so many other parts of the globe—in fact opening up vast dairy territory within our own Provinces that apparently have no bounds, save the sea and the Arctic circle brings in competitors by the thousand—men who are commencing at the very front of the demonstrated methods, who have no prejudices, and traditions to bury, and are commencing an even race with the best of us, brings competition that must inspire us to do the very best things that can be done, or found out about, and then keep everlastingly at both of them. Remember our new door has no lock upon it. Our best methods cannot be patented, and knowledge is free, even to the extent that he who runs may even read, or be read to as witness our one hundred or more dairy schools and dairy stations. A little light is being turned onto every conceivable phase of the dairy industry—from microbes to dual purpose live stock.

In one sense a little learning in dairying is a dangerous thing, for discovery and invention follow so fast one upon another that the science of to-day is relegated to the rear to-morrow by new discovery; and when the tides of prices run high, and every one is on board for a trolley ride—a reverse comes somewhere, and prices take a tumble, and a lot of dairymen go with them, or nature corners feed as it did in northwestern Ohio this season, and cows fall in price to an extent that a tramp will refuse a beef "hand-me-out". But these are the very times to open the door for a better, and more economical dairying. Dull times in dairying are the very times when the dairyman should go to school again, develop new plans, and resolve on new departures, and be ready when the tide does turn to go out farther than ever before on the dairy sea. Now is the very time to talk about, and go about getting, better cows, better stables, better feeding, better ways of handling milk; better thought, better practice, and if dirt must get into the milk, see that a better quality is provided for it to fall in.

I am strongly inclined to the belief that the door that needest widest opening, and strongest light admitted, is the one for the man who stands behind the cow, partially in the shadow of the cow, and a good deal in his own light. He is the fellow who wants the help. The manufacturer, the creamery man, the cheese dealer, and the hundred and one men outside the farm fence are by their own exertions pretty well provided for. All of these are far better equipped than the farmer, who supplies the cream or milk. Dairy schools seem for the manufacturer, and I have seldom met with a manufacturer, who had time or inclination to open his dairy door, and help lift up the ways of a patron, beyond blessing him for bringing dirty milk, and but ready to swing open the door, to let a man whose ways could not be longer tolerated at another factory. The success and fame of the dairy is exactly measured by the quality of the milk the patron pours into the weigh can, and the chief concern should be to so educate the patron and inspire him, that there should only be one grade of milk offered—the best.

One matter that is looming up, one that I can hardly as yet call an open door, but rather a new face at a door that of the fast coming—I had almost said competition—of the new dairy territories of the west, of which the Dominion seems to have its full proportion of prospective territory, much of which has begun to take on definite shape, and have its commercial influence. There is a spirit of invention, and substitution abroad in dairy circles that is fairly transforming the methods of dairying, and making possible extensions of dairy territory, that would have been out of question ten years ago, and it is fast assuming the dimensions of a cloud much larger than a man's hand.

The advent of the hand separator and its ready adaptation to the pioneer farmers conditions, and new ways of centralizing cream gathering and butter manufacture; is to have its effect upon the eastern farmer. I do not predict that it will force the eastern farmer out of the business, but it will force him to open a new door, and make his goods yet better, and put them out in more attractive form; to diversify them, and possibly go into the manufacture of the fancy cheeses, and brands with as rank names, as they have smells, and force us into the most advance manufacture. As I saw the system in the west and northwest, so far as it is related to butter, I was prepared to believe that they would seriously interfere with existing conditions, for this man in the west on those great prairie farms can milk a few cows, feed them on what in the past he has been burning, and can put in the eight months that his farm labor has but little to do to caring for cows, the cream is collected and sent far away, and the cream cheque comes back monthly. He is earning something all the time, and producing it with feed so cheap, that makes us who are east often rub our eyes in wonderment. The skimmilk is left on his farm to feed calves and pigs, and if any milk chances to become sour, the family crumbles in a little rye bread, and presto! it becomes the sustaining ration out of which growth comes loyal citizenship, whichever side of the boundary he or they may live. It is true that there are defects in this prairie butter, but they will be remedied. This new prairie dairyman is a new face at the door that has to be taken into comradeship, and it is a matter that needs to be marked down for an immediate consideration. This new face is to demand instruction at the hands of the Government, will ask for facilities, cold storage, transportation, and by its rapidly increasing offerings, demand a place in the common market. What's to be done in the matter? Shall we ostracize this new face at the dairymen's door, brand him as a usurper, and attempt confiscation of his goods, or shall we welcome him as a brother, shift about our own conditions, and give him place in our councils and markets and divide the income with him? Remember, he is not a Prodigal returning. He has his own calf to kill, and his own musicians to pay. Shall we help him find enlarged markets, become united promoters of dairy produce, or trust to luck, and see him possess our markets?

I believe that an open door of great profit confronts the farmer who will for whatever purpose make a milk as nearly answering the demands of "certified" as possible. There is nothing impossible in this. Certified milk is simply the name given to milk that is in fact clean—with no dirt in it. The cow can be charged with little in making bad milk. "Off" milk is, in fact, only the result of letting something foreign to it tumble in; but unfortunately, all of the things that fall into milk are not drowned and so pass out of existence. Many things find in the milk congenial home, and there thrive. Here the farmer is to be "at the bat", and always "playing ball", so that there shall be no falling in. A strainer only catches

some of the hair, old pipes, and cow's legs. The rest has been dissolved, and become another fluid-solid of the milk, and here pasteurization is only a form of "cooked neutrality"; the cooked corpse of the enemy is still present, ready for a resurrection, and no embalming fluid can suffice. In my opinion there are two enemies above all others in the promoting of "off" milk, or milk that goes bad and gets off flavor, and these are, first, the cotton cloth strainer, used over and over—cold water washed too often, and seeded with microbes, and other kindred germs, until it is so yellow with contamination, that a blind doctor would diagnose it as jaundice in the chronic stage. The other is drawing home when in the same milk can that brought the morning's milk. It may be that the Canadian whey vat is metal, nickle plated, and antiseptically treated each day, and the whey made immune against ferment; but I can assure you that in the States, the whey vat smells to heaven, and I have seen whey so disgusted with its storage that it has actually "boiled over with indignation", and escaped.

Through this same open door we can see a long list of preventable losses, that any farmer who has any respect at all for his industry or himself even will make the attempt if nothing more at improvement. I do not make this as a general charge, but from hints that I see in your farm papers, and what I heard to-day, I gather that there are many Canadians who without dispute are eligible to membership in the American Anti-Sanitation Society; and it is here that the great campaign of education must come, making all as cheap, and as good as the best, and when a reasonable time of probation has passed, shut the big door against all uncleanliness forever, in the case of whether the patron or of factory. The farmer's side of stable sanitation I have spoken of in another talk here, and no more need to be said than this. A farmer should be as good a stable-keeper as his wife is a home-keeper.

The mechanical side of this question, from separators to the final market, will be duly discussed by abler speakers, who are making a life study of them, and I want this man on the farm to study the producing side of the question with the same unrelenting persistence, for out of such comes the triumphs of this everlasting dairy salvation.

Another of the most important doors to be opened and kept open, is the persistent incentive to individualism as a factor in dairy promotion. The moment individualty is lost sight of, or made subordinate—a willingness to become common, to average, to hide faults in massing materials—that moment this dairyman is losing ground, and is blocking the wheels of dairy progress, and doing his part in bringing disrepute upon the locality and the industry. I grant that the trend of the times is in co-operation, and a co-operation that brings greater economies, and corresponding remuneration, yet this co-operation should be a combination of distinct individualism. We say that the old pioneers have no counterparts to-day. Yes, they were men and women of distinctive characters and traits that made their individuality conspicuous; but they were wonderful promoters of industry and thrift because of that very individualism, and if we lack those individual and conspicuous traits now, it is because we are satisfied to lose ourselves in the average crowd, a modern plan of a community to pool intelligence and purpose, with a seeming conjoint in view. The old pioneer did things for himself and worked out his own destiny. Wherever dairying is lagging, it is because of a lack of aspiring individuality, and can only be regained by a fresh supply of augmented pride, and a desire to excel. But to-day where the buyer's side of the dairy industry is deficient, is his willingness to buy on the pool basis, and cut out the premium

for excellence, and I do not know anything that puts a stouter brake on dairying than this collecting raw material from Thomas, Richard, and Harry, of all qualities and conditions, and paying one dead, horizontal price for it. It is unbusinesslike, and it is fatal to all betterment. As well buy all horses by the one price per pound, all beef steers at a uniform price per hundred, and guage all statemanship by the length of the candidate or the diameter of his belt. The dairyman's door here is in demanding a market for raw material that pays for quality, and refuses the cheap and questionable at any price.

An instance of this slipping back, and that for a whole section, is illustrated in the Elgin, Ill., territory. It has been remarked many times lately by visitors there, that Elgin has gone to sleep on its old reputation, and its old time glory was becoming very much tarnished, and it is because of this spirit of letting up, and pooling the good, bad, and indifferent together, and putting the responsibility of the market end of it on the makers. I want to read you a short extract from "Hoard's Dairymen", a pretty good authority, I take it, over here among King Edward's boys: "I have just returned from the famous Elgin district, and while I saw much to draw instruction, I was amazed at the low state of dairy intelligence among the dairy farmers about there. I had supposed to find a class of dairymen rig' t up-to-date, the brightest, and the best read, and posted man in this country. I can tell you I found a majority of the dairymen were not readers of either dairy papers, or books, and all their surroundings indicated it in the care and condition of their stables, the unscientific way they fed their cows, and the slurring way they spoke of their business. With the finest corn at command, they had far too few silos, and some of these men stalled their cows, letting them run in the uncut corn. Everything about Elgin, soil, climate, market, demand and the like, were ahead of the men who are carrying on the dairy business. How can a man to-day carry on a business of such close discrimination, who is ignorant of its up-to-date current literature." And this about a district a few years ago that attracted the attention of the world to is commanding excellencies. I do not bring this charge specifically against Elgin, for there are other localities in the country about which like things can be said, and I notice in your Canadian papers, no end of charges of remiss duties on the part of patrons, and I was going to say again of certain sections, for I read your best farm papers; but all this is to enforce the thought, that the moment individualism is lost sight of, and excellence goes unrewarded, all is sunk to a common level. There can be no lasting gain where the uplift does not reach every man, from the barefooted boy who "drives the cows" to the member of Parliament who runs a factory, as a sort of summer recreation.

In this I am inclined to a paternalism of Government that will help in opening the door. We are talking about official license to run factories, to the end that all shall be sanitary, be supplied only by competent men, and no laxity allowed. License must not stop at the factory door, it must go to the patron, and if he is intelligent, as he has the possibility of being, and comprehends what intelligence in dairying implies, he will have forestalled the visit of the door opener, and to such the law has no terrors. He realizes that he is engaged in the supply of the finest food in the world, and that on the score of health alone, he has no right or excuse in adding any matter, liquid, or solid to milk, or handle it only in the most perfect way. This man welcomes the advent of progressive dairymen to his society, and feels that the more of them the greater the reputation of his class. Of him that will not heed these things, let him take warning that ignorance

and obstinacy will be beaten with many stripes, but the man who lends willing and obedient ear, and doeth them shall pass through the door, and sit at the royal table of reward. In the presence of all these distinguished cheesemakers and dairy produce makers, I have only a few words to say in regard to the dairyman's open door in this connection. I do not believe we can raise the existing grades of quality in our cheese until there is a notable advance in the quality and purity of the milk delivered to the factory. Large amounts of milk are delivered which is about faultless, but the balance—aye, there's the rub. It is a pretty difficult thing to convince the patron that there is merit and money in this extra work of caring for and transporting milk. If it could be shown that it paid—this minute—the convincing would be easy, but dairy goods have to win out in a series of years to prove their increased excellence, and permanent quality. Everyone notes the increased tone of public sentiment on this point of sanitary conditions, of which at least two-thirds belong to the farm; and I can think of no other thing that could happen that would so redound to the reputation of farm, and factory, as to have patron and maker stand together for purity of product, and put in practice, a system of production that gets down to certified milk as a common raw material out of which to make the finest food luxuries in the world; and I here express the hope that the collective dairy interests of America—and I mean big America now—will move in this matter as willing volunteers, rather than drift along until compelled by police power to make war on the inexcusable myriads of microbes offered in commercial milk and cream. Wherever there is a marked and continued bettering of milk offered in this city, it is followed by a phenomenal increase in consumption, and we had almost said price, and there can be no reason assigned why this should not be as true in the cheese demand, when made from a higher quality of milk.

There is another door to some absolute knowledge about cow breeding through which this dairyman must pass and once through, stay through; and it is this one fact, that the simple act of introducing the blood of some dairy breed into a herd very rarely improves it, unless there is a protracted effort, presented along the line of mating excellencies, and making this excellence by thoroughbred cows. The fact that new blood has been introduced is no guarantee that better milking progeny will result. There must be a studied intelligence in the matter. No one can point to superior cows resulting where pedigree alone or breeding anything has been the guide, only where there has been intelligent mating of the excellencies of that pedigree—individual merit; and I have yet to find where the promiscuous mating and crossing of breeds and the use of grade sires has produced other than a retrograde movement. Near me is a locality that has gone into breeding black-and-whites for the dairy, and most of the farmers of that section have grade dairies, and the scales at the factory shows no improvement in milk yields over those of twenty years ago. They have simply bred black-and-white cattle. They have, with few exceptions, used a grade sire, if he was black-and-white. They assumed that if they used a sire with the Holstein colors, it was all that was essential. Black-and-white was all that they demanded in a sire, and expected the name Holland would do the rest. The mating of excellencies, and these excellencies the result of several generations of prepotency, was not reckoned with as a factor. Now, what do we find after ten years of this hit-and-miss breeding? Last summer my neighbor Poole took a cow census of 100 dairies in this locality for Hoard's, and what do we find? Two-thirds of these dairies were made up of black-and-whites. This is the finding: Eleven

dairies averaged 2,641 lbs. each; twenty-two, 3,600 lbs. each; 36 dairies, 4,400 lbs.; 20 dairies, 5,000 lbs.; 6 dairies, 6,400 lbs.; and 2 dairies, 7,000, and one dairy 8,000. Of the last four the farmers had been breeding in line to establish a herd with one family blood, and had been using sires of both pedigree and milk records to recommend. You can see that the other 95 farmers only averaged 4,000 lbs. of milk, good and bad together, which sold for about 90 cents per 100 for the year, or $36 per cow; and if we are to reckon the keep for feed alone at $36 per cow, the heirs of these men have little to look for. Of these 95 farmers, 70 received less than $30 per head from these black-and-whites. We have not added 10 per cent. for depreciation, or two per cent. for taxes. The Wellington Jersey returned $29 per head. We want to spare all harrowing of feelings possible. Here we see the effect of not only mixing the breeds, but the use of grade sires with no backing but black-and-white to commend them. Breeding dairy cattle without a purpose and merit save color is as fatal as to mix in beef types. This mating purposeless types and consequent family antagonyms; this mixing the known with the unknown; this multiplying the relationship of a cow, when as a rule she already has too many relatives, good and bad, the last usually predominating—all this is unwise. The right plan is that of concentration of excellencies, using only a sire of strong dairy individuality, with much family prepotency behind him, and the blood of one family line. Far better use the same sire two or three generations, than to bring in antagonistic blood, unknown influences, or a grade sire that as often breeds downwards as it maintains an average. Right here comes in that long-continued argument about the dual purposes cattle. What this dual purpose cow is, or how bred, is in dispute, even by her warmest advocates, and how she is to be bred none ventures with definite directions. But this remains, that as a result the market is overcrowded with a lot of cattle that are not wanted in any market, and of this the Live Stock Journal, America's highest authority on beef breeds, has the following to say in a recent issue: "While complaint about poor cattle is ever rife on market circles, this season it has been more audible than ever. Never has such a flood of bovine trash been thrown into the butcher's lap. It has attracted the attention of live stock writers all over the country".

And in assigning a cause, one of the writers says: "The source of these cattle that go begging on the larger market is, no doubt, upon the farms where cows are kept for the dual purpose of raising a calf for beef and giving milk for the factory or creamery."

We give tongue to this matter from the fact that in no place is the general run of farmers more lame than in this one thing of breeding and maintaining their herds and having them grow better. There are instances by the score where farmers are the peers of any one in breeding, and whose herds are the pride of the locality for excellence, and in the locality spoken of I know of four as fine herds of well-bred and well-performing Holsteins as one would wish to see, one of which was the only 8,000 pound herd in the list. But even these herds, now shipping milk to the city, must have a few poor, little despised Jerseys to raise the total solids to the legal mark. The point I wish to make is that one can breed for quantity of milk and run a little scrimp on the quality. We say this for there is a day fast approaching when the manufacturers will stop trying to make cheese and butter out of colored water; and while I single out no breed, I plead for an open door that introduces a well-bred cow of individual excellence, and abundant in quantity and accompanying quality.

There is a sentiment abroad that dairying is becoming unpopular with many, and there is less inclination among the young men to engaging in it. If this be so, it is time that the dairymen took hold of this matter, and raise the standard of dairy intelligence and education up to a point where it will be popular to be a dairyman. This door must be opened to the boys and girls of this country so invitingly, with so much of interest and profit in sight, that they will without question become our future citizen farmers. We cannot expect much change in the gray heads with settled opinions, and while we may not change much, we have it in our power to promote and institute a change, an uplift, that shall be a power for good to those who come after us. The door must be opened wide, and the light made so clear, that it will be recognized that getting a start, and winning success in life, does not imply that one must leave the farm. It must be shown that a man may by intelligent practice have a fine farm, high producing dairy stock, may know about feeds and feeding and produce the best; but it implies study, comparison, and gathering the best information and applying it. The man who refuses to educate and broaden his mind along his business, and casts behind him forever the "reckon and the guess", will always be found milking mixed-bred cows, in which failures are the most prolific, will be feeding anything if it is cheap, and believing that all failures are due to the factory and market end of his business. As one has expressed it "too many men go through life mistaking their gizzards for their heads." The moment a man sees, and puts in practice the idea that he can cheapen the cost and increase the excellence of an article, that moment he has opened the door to enlarged opportunities.

At the last, we want a door that opens out upon all that is modern in demonstrating best thought and practice, and shuts behind the dairyman the door of that inexhaustible store of unproven vagaries and suppositions that are the equals of superstition in shutting out light of truth. Through this door we shall see a dairyman who is both a good cow keeper and farmer as well, for both do not always travel together; a man who knows what his farm can best produce, and can formulate a ration from it suitable to the cows, and who, when he must buy, buys what he needs; who has a Government behind him that sees that what he buys is pure grains, and not a compound of worthless fibre; who has a judgment that gets a profit from what he feeds, and is always ready to testify to the faith which is in him; a man who makes his brain sweat to find out why two and two are not five, in dairy results, rather than agonizes over the fact that a neighbor sold a pig twenty-five cents more than he did, and more: having an increasing belief that the Government in its dairy schools, colleges, institutes, bulletins and experimental work, is doing it for the dairyman's benefit if he will accept the proffered aid and use it to his comfort—and so down the list of which mention in detail would be impossible.

First in importance, and last to mention, is the golden framed open door of dairy intelligence, and the clearing of the mental atmosphere that the truth may be more easily discerned, the advanced guards of the highest and best dairying. Too many dairymen are enveloped in a fog instead of a clear discernment of dairy truth, and too many operators and promoters fail in the understanding of the truth, that their success is involved in the better education of their patrons.

Through this same open door we will see as never before, the suicidal policy of milking 3,000 pound cows, and mixing breeds, and haphazard breeding, and the folly of thinking that a farmer's responsibility ends when he has delivered milk of all degrees of quality, and condition at the

weigh stand, and that buying cheap, where supplies must be bought, without regard to quality. There must be a self-examination on the part of the dairyman. He should shut himself into a locked room, and with pencil and paper ask himself what he knows for sure about his business, the cow, and what he is dairying for? Then let him as honestly write down his guess work, and moonsigns, and then ask this one other question, "Is it paying me to be ignorant?" What the dairy industry needs imparted to it is a new breed of dairymen, men with well-defined ideas, and ideals. I firmly believe that if one-third of the cows could be placed between the armies at Port Arthur, and one-third of the dairymen go to selling lottery tickets, for their business has always been a lottery, and a third of the factory operatives take a two years' course of schooling under Prof. Dean, the dairy industry would in substantial progress be almost too great to realize.

And so we preach, and so believe these things, that a man's success in any avocation is measured by his intelligence and the skilful way in which that avocation is managed. We lack, on both sides of the boundary, an educational force that emphasizes the importance of the farm, and the dignity that attaches itself to the person who with exalted purpose, makes it his life pursuit. I hope for a consolidated rural school in which the things of the farm shall have a part in its course of study, to the end that nature, and the ways of those who profit thereby, shall be made prominent, and through the open door will come a more complete and satisfied country life, made up of a better and more symmetrical and higher purposes. I believe that the dairy farm can be made the best place on earth on which to be born, educated, married from, and from which to add one's name to the honorable mention of earth's noble manhood and womanhood, and at last from which to start for our Heavenly home.

ADDRESS.

By Hon. Sydney Fisher, Minister of Agriculture, Ottawa.

This convention has placed before us, to-day and yesterday, a great mass of technical information, and a great mass of expert information and advice in dairying matters, and I will not undertake, for a minute, to continue in that line in what I have to say to you here to-night. You have been fortunate in having present with you a number of the leading experts of this Dominion on dairying matters and you have had the benefit of their knowledge, and the scientific knowledge which they have acquired so as to help you in your work. There has been so much of that given to dairymen of Canada in the last few years, such excellent advice, and such important information that I feel as though we had reached the point where now our chief labor and our chief work must be rather to induce the average farmer to put that advice and that knowledge into practice, rather than to heap further advice and further information upon him. If we can only do as well as we know, we would all be excellent dairymen and excellent farmers; but, unfortunately, the average man hearing good things acknowledges their truth, gets information of the greatest value in his business, and then goes home and does just the opposite. I venture to say it is almost a national failing of the Anglo-Saxon people. They despise theory, they despise study in what they call the practical affairs of life, and the practical man rather prides himself on not taking expert scientific advice, and the result is

that the Anglo-Saxon people whether in the old land or on this continent of America are frequently surpassed by other people who have not their energy, their enterprise, or their ability, but who do take advantage of the scientific truths which are laid before them.

The eyes of the world to-day are turning upon the great war which is being carried on in the Orient. We are struck dumb with admiration at the wonderful success of the little Japanese nation which has not only withstood the mighty Empire of Russia, but has beaten her to her knees; and only the other day we heard the crowning triumph and glory in the capture of the greatest fortress of the modern times by that same Japanese army.

It was my good fortune two years ago to spend a couple of months in Japan, and I tried to find out what was the secret of the wonderful modern development of that old nation, and I came to the conclusion that this was the true secret of it, that they had carefully studied out what was best to be done, and having so studied it out, they went on and did it—and did it without variation or swerving from the goal which was laid before them; and so in this war they have come to triumph after triumph, because they had planned it all out before they had opened the campaign. I was told there, two long years ago, just what they were going to do. They laid their plans and they carried these plans out regardless of cost, because they knew that, that line of action was the only one which was going to bring them triumph and success. They followed it out and they have reaped the advantage and won the success.

Now, we dairymen in Canada can draw a lesson from that nation. We have studied for a long time what is best to do in the dairy work and in our agricultural work. We have a great army of students and a great army of workers, technical workers, who are studying all the time for the benefit of our farmers, and telling them what is right to do in their business. The advice of these men is founded on truth and fact. I have had many opportunities of studying the agricutural education and agricultural work of all other countries, and I venture to say in this particular that the agricultural education in Canada as exemplified in Guelph Agricultural College is perhaps the best that is within the reach of any farmer to-day, because it is the best and most complete application of scientific work to every day work and practical work.

If the farmers of Canada and the dairymen of Canada have this enormous advantage in competition of the world, they ought to reap the greatest benefit from it by implicitly and carefully and all the time carrying out the advice which is given them, but I regret to say that there is not ten per cent, if indeed there is five per cent., of our practical farmers who make the slightest attempt to carry out the advice of our technical officers.

Referring to the words of Mr. Hodgson this afternoon when he was so complimentary to my own work, as head of the Department of Agriculture in this country, I regret on this occasion, the first time that I have come before a meeting of farmers since the event, to have to allude to a great change in the staff, in the resignation of Professor Robertson.

I need not, in speaking to dairymen, dwell on his labors and his work. I need not eulogize to you the man, or what he has done for this country. You know it all as well as I do. I can only say for myself as head of the Department, and I think I can speak for the whole agricultural world of Canada, that we regret exceedingly his leaving the services of the country. (Applause). We can, however, console ourselves that although he is leaving the service of the Government, although he is severing his connection

with the Department of Agriculture, he is continuing that noble work in the interest of Agriculture in Canada which has distinguished him for so long; and I am satisfied that in the sphere which he is undertaking and opening up, a sphere which in itself he has practically created, that he will continue to do the splendid service and the noble work for the Agriculture of Canada which has distinguished him in his career for the last 18 years.

Naturally, Prof. Robertson leaving, there will require to be some slight rearrangement and reorganization in the Department, and I want to say to you as farmers, that I do not propose to appoint any person to do the work or occupy the position he has occupied; but to you dairymen I want to say that I am fortunate, and I think you and the dairymen in Canada are fortunate, in my being able to command in the future the services of the Dairy Commissioner, Mr. Ruddick. (Applause.) He is well known to you, and his work and service to the dairy world of Canada are perhaps only second to those of Prof. Robertson, and he will continue in the service of the Department, as I have had the pleasure to-day of appointing him to the position of Dairy Commissioner. (Applause.)

The work of a Government Department is in the interest of the people; it is our duty to serve the people. It is my duty to work for the farmers of Canada, and try to place at their disposal all the advantages that can be secured through Government interference or Government labor. This afternoon I had the pleasure of listening to the remarks of Mr. Grant, and he suggested to me certain things which he thought the Government ought to do. I know Mr. Grant to be an independent man, and quite willing to trust to his own exertions in his own sphere of labor. I am quite sure he would not want the Government to interfere with his buying and selling of the butter and cheese which he handles, and if he would think of it a little further I do not think he would care to have the Government interfere too much in the dairy work of the country. All that Parliament can do is to aid and assist and give information, but to interfere as little as possible with the individual rights or the individual work. The Government simply represents the people of the country, and if the majority finds it is necessary to restrict the minority it has to be done; but the less of it that is done the better. I know that many people have asked the cheese-buyers to regulate the price, and to buy according to quality. Mr. Grant said they could not do so because they were in the hands of the salesmen. Well now, the Government and the members of Parliament are in the hands of the electors, and if the buyers cannot fly in the face of the salesman, so the members of Parliament cannot very well fly in the face of the electors. I suppose when Mr. Grant said they were in the hands of the salesmen, he had in mind it would be commercial suicide for him to undertake to offend many of the salesmen. While personal suicide is a crime in this country, and punishable, I venture to suggest that political suicide on the part of members of Parliament in flying in the face of their electors is punishable with a very short shrift at the next election. (Applause.)

I want to say a word especially to you dairymen of his district, and I want to say it without the slightest political reference. I want to congratulate the dairymen of this district on the fact that your President has been chosen as a representative in Parliament. I grant you frankly that the fact that he supports the Government does not make it any more objectionable to me, but at the same time I want to lay aside all that political feeling, and say as a member of the House and a member of the Government, trying to forget altogether the political difficulties which come so frequently into the House, that it is a good thing for the dairy interest of Canada

that a prominent dairyman should be elected as a representative in the House Commons. (Applause.) I want to say to you as Minister of Agriculture, that it is a great advantage to me to have on the floor of Parliament men who are thoroughly conversant with the agriculture question,—men who can discuss these questions intelligently and from a practical business standpoint. I care not as far as that is concerned, whether they are in the Opposition or support the Government. I am glad to be able to say, without reference to party, that questions of agriculture which it has been my duty to bring forward have been favorably received by the Opposition as well as by the Government side, and I have no fault whatever to find, and I never have had any fault to find, with the manner in which those who represent agricultural constituencies have dwelt with the agriculture question which it has been my duty to bring forward and discuss. It is in the interest of every section of the country and every industry in the country, that men who are thoroughly conversant with the business itself should be present in the House to lead in the discussion and instruct those members who are not so fortunate as to know the details of that particular question; and in this sense I want to congratulate the Eastern Dairymen's Association and the dairymen of Canada generally that Mr. Derbyshire has been elected to the House. (Applause.)

There is only one thing I want to say with regard to what has been put before this Convention. I understand that yesterday one of the officers of my Department put before this gathering a sketch of the beginning of certain work which I believe will be of the greatest advantage to the dairy world of Canada and to the live stock interest—I mean that very small beginning we made last summer in taking what is called a cow census. Here let me give credit where credit is due, and say that the idea which came to my mind and which caused me to start that work in Canada, came from that veteran dairyman who we have so often heard, Governor Hoard. Governor Hoard's cow census of the state of Winconsin has been to me a revelation. Details which he has been able to publish in "Hoard's Dairyman" have been one of the most educational set of facts that have been presented to the dairy world, and if we can in Canada, get that sort of information for the individual farmer it will perhaps lead to greater advancement and progress than any one thing can possibly do in the present state of our industry. We know pretty well how to handle our milk. We know pretty well how to make butter and cheese. We do not all do it, but we all know how to do it. The great thing in Canada to-day is to get more milk, and to make more butter and cheese; and here, let me say, notwithstanding the fact that during the last season the price of butter and cheese has been rather low, still the amount of butter and cheese which has been sent forward from Canada to the outside world even at this low price has been a magnificent asset to the people of this country, and specially to the farmers.

I venture to say that, notwithstanding the low price that is no indication that we have overdone the market, and I am satisfied that if in the future we send forward good goods we will be able to sell all we can send there. One of the things that we must attend to and work towards, is to increase the production per cow, and I think for this purpose to compare the individual cows will be a useful work and of greater value than anything else we can do at the present time; and for this reason I wish to continue the work, and I wish to call upon the dairymen to help in the work in order that we can get a pretty complete cow census, so that we can know what our cows are doing. Some of them are barely keeping themselves, and many of them are a bill of expense to their owners. This will help us to remove from our herds the poor animals. Anything that we can do in this way to

stimulate better observation will certainly help our farmers, and make the business, as it always must be, and will be, a better one for those who are engaged in it. The coming year I hope to devote more of the time of my Department, and more money, if necessary, to the encouragement of that work all over the country. Just how we may best carry it out we have to learn from our experience and from contact with the men who will have to carry out the work.

I believe it is absolutely necessary in the work of a Governmental Department that whatever we do we should do carefully, considering and consulting with those for whom we are doing it; and it is largely for this reason that I am always very glad to be able to come to gatherings of this kind, so that I may find what are the views and ideas, as well as to know the wants and needs of the people who are gathered together representing the agricultural industry of the country. I am glad to come here to enjoy this convention and meet with you face to face, and I shall continue the same kind of thing to-morrow. I trust that the outcome of this Convention be just the same kind of thing as the outcome of the Convention last year at Belleville. It is complimentary to the Association that where it goes there is a stimulus to do better work; and though to-day Belleville is getting ahead of Brockville in consequence of your Convention meeting there last year, we may look to it that Brockville will once again get the lead on account of the Convention being here this year. (Applause.)

ADDRESS.

By C. C. James, Deputy Minister of Agriculture, Toronto.

The dairy industry in Canada owes a very great debt to the Brockville district, and in going back with this annual meeting to the good old town of Brockville on the St. Lawrence, I think the dairymen simply thought they were paying a compliment to that section which was the great dairying district of Eastern Ontario. I have had on more occasions than one, in talking about the importance of our various agricultural industries with town and city people, but who are not directly interested in it, told them a few things about what the butter and cheese and bacon of this country have done to build up the prosperity of the country; and when I tell them that down here in Leeds and Grenville there is produced every year between one and a half million dollars worth of cheese, I have been looked at in amazement. At first they have doubted the statement, but as I have explained it to them they have realized that down in this section at least cheese must be the king. The dairy industry owes a great deal to the Brockville district. The people of the town of Brockville certainly ought to take a deeper interest in this Convention than in any other convention that meets here. It is hoped that not only will the Association receive some benefit from coming here, but that the town and district also may gain from this meeting of the Association.

We have just got nicely started on the twentieth century, and if we ask ourselves what were the striking characteristics of the century so recently closed, we might get a variety of answers, but in thinking over this question it seems to me that two great lines of development stand out prominently above all others, and these two are the development of the great transportation facilities and the development of the great manufacturing industries. These two have gone hand in hand, and we have seen at the close of the

nineteenth century the greatest development the world has ever known. What is going to be the main characteristic of the twentieth century? Certainly the great transportation schemes will be improved and increased, and our lines of manufacturing industries will be still more developed; but I venture this remark that the one thing that is gong to be the characteristic of the present century above all others, will be the development of agriculture. The twentieth century is going to be the farmer's century. If you look back over the last ten or fifteen years and observe the wonderful development that has taken place, and the wonderful promise of development that has been taking place, you will see that we stand at the beginning of a movement in connection with the agricultural outlook that I venture to remark will make the twentieth century the great agricultural century of the world up to the present time.

Now, if this is the case, and if agriculture is opening out along so many lines and in so promising a manner, it seems to me that we who are interested in this work, whether we are likely to be interested in it or to be concerned in it in any way, ought to keep that question right before us continuously, and in our work, in our thinking, in our reading, and in our planning we ought to shape ourselves so as to fit in with that great agricultural development. The young man who stands to-day looking out for a future for himself, and asking which line is most promising, what field is there that will give him the greatest scope for the development of his faculties, has before him in connection with agriculture a more promising field than any other line of work presents at the present day. I do not think there are going to be as great fortunes made in agriculture as there are in connection with the great transportation undertakings or great manufacturing industries; but for the great mass of mankind, for the thousands upon thousands who are going into it, there is a greater promise for competition and for enjoyment for the future in connection with our agricultural work than I can see in connection with any other of these lines. I do not think that statement is too strong, and if you will sit down and compare the present outlook with what we have had, you will conclude that there is a great deal in the statement that I have made. We have one illustration of that in connection with the work in which Prof. Robertson is about to continue his services. Why is it that there is to-day a citizen of Canada, a man living in our largest city, who, having made his money as a manufacturer in that city, and who, looking over the whole field of Canada and asking himself where can I best put my money for the future improvement and for the betterment of this country, has selected agriculture as the line along which he is going to make his investment, simply because he says there is a field that presents the greatest promise; there is the field for investment that promises to give him and to give his country the best returns for that investment? That is the opinion of a shrewd and successful man in his business operations. The people of this country have got it into their heads in some way that the great future of Canada is wrapped up in the development of its agriculture, and the result is that any proposition you can lay before the people looking to the improvement of agriculture receives hearty support. We frequently see these magnificent statements about the possibility of the Northwest and Manitoba. Certainly no country in the world presents to-day greater possibilities for the production of wheat and flour than our great Western Territories. We are already beginning to see statements in the papers warning people that perhaps they are going too fast and developing the wheat too rapidly, and we ought to consider what is best for Ontario, and it behoves not only the Dominion Department of Agriculture but also the Provincial Department of Agriculture to further develop this industry in this Province.

Now, in connection with all these agricultural questions, I would like to leave you simply one thought, and you can apply it from start to finish, that the agricultural development of Ontario is going to be sure and fixed and established only as we keep before us this one question, namely, that quality is of greater importance than quantity. You can begin right at the very formation of dairying and apply that right straight up from the ground. Quality, first, last, and always. Begin right from the soil, through the plants, the animals, the milk, and everything else, and quality is what we must look for. We are going to have wonderful developments in connection with agriculture in Canada, and are we in Ontario going to stand still and allow other parts of the country to develop and get ahead of us? We should keep this one question before us—quality, and keep on developing the industries on that firm foundation.

I have been reading the reports of some interesting experiments that are now being carried on in the neighboring states. Experiments that we have been working out here in different parts of Ontario. The foundation of dairying, of course, is the soil and its production. From the animal we get the milk, but the animal gets that from the food which she consumes, and that comes from the soil. We will have to begin with the development of the food products, and in the State of New York they have been experimenting with that old familiar crop, timothy. It seems we have been overlooking that crop for years. We have known timothy for 150 years, and timothy here and timothy there always appeared to be the same thing; and yet they have started in to find out that there is a possibility of improving timothy, and they have found out by careful selection that with a plot of timothy plants grown here and another there, will produce in one case a crop four times as large as the other. They have found, also, that it is possible to take two seeds and sow them side by side, and from one get a product four times as much as the other will produce. That shows there is a possibility of improvement within that one simple plant that may mean an increase of millions of tons when spread over the whole continent. In the State of Minnesota we find they have been making tests and experiments, and they have been producing a great many varieties of new wheat that are two, three, and four times as valuable as the old varieties, and in Ohio they have been able to produce corn two, three, and four times as valuable as some other varieties.

Now, the man who gets into touch with the new agriculture of this country, and who wants to take his place in the development of our agriculture, must start at the foundation. The successful dairyman who wants to make a success will get the best results only by beginning at the foundation, and seeing that the crops produced are the best in quality that can be produced. The man who neglects quality and thinks only of quantity, in nine cases out of ten will fail, and in the tenth case he will succeed not by his own efforts but by some lucky circumstance. Quality means more in connection with the cows of this country than we realize. We have on the farms of Ontario, a little over one million milch cows. It would not take a great deal of work or extra care or extra feeding to make each of these cows produce $1 worth more a year than she is now producing, and yet that would add $1,000,000 to the dairy revenue of this Province. And if we could add $10 it would add $10,000,000. Don't you think that is a field worth cultivating? Isn't that a question which is worth our careful consideration? Is not that a question that is worth holding a convention about, and having cow census, and sending around expert speakers and instructors? And is not that a question that is worth the careful consideration of the people of this country. Supposing someone proposed in the public press to-morrow morning to estab-

lish in the Province of Ontario at Kingston or Toronto or Brockville, an industry that would turn out a product every year worth ten million dollars, you would have all the councils and all the bankers and leading citizens of this country prepared at once to vote a big bonus to them; and yet here is a business that is well established, and with a little more energy and enterprise we can increase its output by ten millions a year.

The one point I want to get into your minds is this, quality is of far greater importance in connection with the industry than quantity. And then we can apply that question of quality to the handling of milk, to the making of the butter and cheese, and to sending of it out. We know very well that if we go into keeping up the quality, the quantity will come along all right. What this country wants is not quantity so much as quality. In its citizenship we do not want a large number of immigrants so much as we want a good quality of immigrants. If quality is of so much importance in connection with the growing of our crops for the feeding of our stock, and if quality is of so much importance in connection with the animals we feed and in the handling of the product, it is of far more importance that we see to it that the men and women who are going to take their part in this work shall be of the right quality. We are a little bit apt to overlook this question of the morals of the persons who are concerned in our agricultural industry. We have been trying to help and develop, we have been trying to expand the industry, and trying to show the people how they should make more money and get rich and get on faster, but I am afraid we have not been paying sufficient attention to the moral aspect. We have been looking at the quantity rather than the quality side of it. Canada in the future is going to take her place as an agricultural country, not simply on the number of bushels of wheat she produces or the number of animals that are sent across the ocean, or the boxes of cheese or pounds of butter, but she is going to take her place only as she develops within herself a strong manly nation of honorable citizens. If we can only do that, we will see the effect in the uplifting of our agricultural industries. (Applause.)

The CHAIRMAN: I have received the following telegram from the Hon. Geo. P. Graham:

Toronto, Ont., Jan. 5th.

Convey my greetings to dairymen assembled. I wish you a successful meeting, and trust that deliberations will tend to still increase the quantity and improve the quality of the dairy produce of this Province. Geo. P. GRAHAM.

OUR CREAM GATHERING CREAMERY SYSTEM.

BY J. W. MITCHELL, B. A., SUPERINTENDENT DAIRY SCHOOL, KINGSTON.

We are often told, and rightly so, that dairymen should train and use their various senses. After using mine on the programme of this Convention I concluded that it possessed a decidedly "cheesy" flavor, and that it might be as well before the close to turn up the "buttered side" of dairying. Hence my selection of the subject of "Cream-Gathering Creameries" for brief consideration.

As we turn the pages of the history of butter-making in this country from the early crude forms of home-dairying to the highest form of present-day co-operative or creamery butter-making, we begin to realize what a great evolution has taken place in this branch of our dairy industry. But while it

is true that great advances have been made, is is equally true that the taste of the Old Country consumer has become more and more fastidious, and that our rivals are thoroughly alive to this fact, and are making every effort to please him. It behoves us to ask ourselves where we stand and what our prospects are. Are we gaining, or even holding our own, in the race, and are we proceeding along right lines, lines that will insure steady progress and ultimate success in our creamery business?

This brings us to a consideration of the cream-gathering creamery system of butter-making. It is a well-known fact that this is rapidly supplanting the separator creamery system in Ontario and is gradually working its way into others of the older provinces. Why is this? Evidently it is not due to the high favor in which cream-gathering creamery butter is held by the trade, as the following extracts from letters received from a few of the leading Montreal exporters readily attest:

"It is quite impossible to get pure flavored butter from ordinary cream-gathering, and parties who adopt this system must not expect as much for their butter as is paid for the best separator butter. We should say that the best of gathered cream butter would be worth about 2 cents per lb. less than the finest separator."

"Butter made from cream-gathered factories can never be classed as finest. There is more or less flavor, and in consequence this butter is worth from 1 to 2 cents less than the butter made from cream sparated at the factory."

"As to gathered cream, the butter from this I have no use for; my experience is that it is just a grade beyond our old Dairy methods. In my judgment there is 2 cents per pound difference between the best gathered cream butter of Western Ontario and the best Eastern Townships' separator creamery butter."

The foregoing are the opinions of some of the foremost Montreal exporters, and they are wonderfully in accord with each other and are undoubtedly well founded. Evidently the rapid growth of the cream-gathering creamery system is not due to any encouragement received from this source. My own experience with cream gathering creameries, an experience extending over several years, has forced upon me the conclusion that the butter from such creameries, as they are now operated, is inferior in flavor to the best separator creamery butter and lacks in uniformity and keeping qualities. Flavor is of paramount importance, and although butter may be perfect in every other respect, it will always be ranked largely according to its flavor. Uniformity in flavor is also very essential. Nor is it enough that the flavor of butter be good; it is essential that it be uniform as well, for when one becomes accustomed to a certain flavor it is this he begins to look for and even demand. Again, if butter lacks reasonably good keeping qualities this defect will militate very materially against it—especially for export purposes. Hence we see that the defects mentioned are serious ones, and unless they can be overcome the system will not be crowned with the success that its advocates and well-wishers are hoping for.

Why, then, the rapid growth of the cream-gathering creamery system? What are its strong points, and what its defects and their possible remedies?

Some of the Strong and Attractive Features of the System.

The system undoubtedly possesses many real merits, and these are of such a nature as to readily and forcibly appeal to both the patron and the proprietor of the creamery. I shall state them in as few words as possible.

It can be successfully adopted in sparsely populated districts where no other form of co-operative dairying is practicable, and this was thought at one time to constitute its limit. The introduction of the hand separator has, however, widened its application, and it is now invading what was supposed to be the exclusive field of the other forms of co-operative dairying and has come to be regarded, in this Province at least, as the "yellow peril" of the separator creameries and some of our cheese factories. Again, skim-milk from a hand separator is in ideal condition for the feeding of young stock, and this the farmer rightly prizes very highly. The cost per pound of butter for hauling the cream is not nearly so great as where the milk is delivered to the creamery. A cream-gathering creamery can be made to serve a much larger territory than either a separator creamery or a cheese factory, and for this and other reasons the cost of manufacturing is very considerably reduced. These features all commend themselves so strongly to the farmer that lasting hold upon the affections of those to whom our dairy industry really belongs.

Defects of the System and Their Remedies.

The system undoubtedly has its defects, as it now operates, as well as its merits, and while the latter effect a saving and enhance the patrons' profits at the manufacturing end, they are swallowed up at the other through the making of an inferior article which cannot command the highest prices. What may be regarded as *the* defect of the system is that it robs the butter-maker of the control over the ripening and flavor of the cream and the keeping qualities of the butter which he has for years struggled to gain in our separator creameries through careful examination of each patron's milk, the pasteurization of the milk or cream, and the use of a culture or "starter" to ripen the cream. Again, in many creameries where the cream is brought in in loads with several patrons' cream mixed together in a tank or can and the cream sampled into oil-test tubes by the cream collector, the butter-maker has little or no opportunity to examine the individual patron's cream or to give him advice as to the care of it.

Unless these difficulties can be overcome the system can, at best, be but a partial success. Hence a systematic and persistent effort must be made to bring our creamery patrons, each and all, to a full realization of the increased responsibility that the system imposes on them, and an equally persistent effort must be made to place the butter-maker in possession of what the system has deprived him, viz., a uniformly clean-flavored, sweet cream, and a knowledge and supervision of the work done by the patrons.

The cream should be clean-flavored and sweet when it leaves the farm, and should be kept sufficiently cool and delivered frequently enough to accomplish this. The patron's individual responsibility is great, and he should be led to fully realize it through pointing out to him that a single lot of inferior cream will injure a whole churning, and he should be thoroughly instructed as to how to produce and properly care for cream. Hand separators should be used by all patrons, and should be thoroughly cleaned at each time of using, and not allowed to go with a mere rinsing or flushing as some separator agents recommend. Warm cream from the separator should be placed in a separate vessel and cooled well down to 40 degrees immediately after separating. It is also quite possible that we shall find it necessary to use a small amount of some good preservative in the cream at the farm. This we purpose experimenting with at our school during the present session. *Fre-*

quent delivery of *the cream in a sweet condition, pasteurization* and the *use* of a *starter* to *properly ripen the cream are, we believe, essential* to any *great measure of success under* the *cream-gathering creamery system.*

Where the cream is brought to the creamery in large cans, or in tanks with several lots of cream mixed together, the cream collector should be provided with half-pint bottles in which to bring a *representative* sample of each patron's cream to the creamery. Upon arrival at the creamery each patron's cream sample should be examined by the butter-maker, a small sample taken and put into a composite sample bottle set apart for the patron, and the balance emptied into the cream vat. This system of sampling would be of inestimable value to the butter-maker through enabling him to examine each individual patron's cream and give advice where necessary. A Babcock test of the composite sample could be made either monthly or semi-monthly.

Composite sampling and *the use* of *the Babcock Test should* and *undoubtedly will, eventually completely supersede* the *Oil Test.*

We have aimed to faithfully present the merits and defects of our cream-gathering creamery system, and to suggest remedies for the latter. The merits are both substantial and attractive in character, while the defects are serious. If the suggestions we have made were acted upon and applied intelligently, faithfully and persistently by our creamery managers and their patrons, we believe that much of the now well-founded aversion of our buyers and exporters to the butter from our cream-gathering creameries would be overcome. But while, theoretically speaking, it is possible to make a uniformly high grade of butter under the cream-gathering creamery system, we have grave doubts as to whether such will likely be worked out in practice. Certainly not unless such conditions are provided as will restore to the butter-maker full control of the ripening of the cream, viz., frequent delivery of the cream in sweet condition so that it can be pasteurized, and a culture or "starter" used to ripen it. Are the proprietors and patrons of our creameries prepared to join hands and enforce and provide the conditions essential to success? If not the system will, at best, meet with but partial success, and much of what is gained at the manufacturing end will be lost through the manufacturing of an inferior article which must be sold at a reduced price.

Prof. Dean: During the past month of December. we took a limited amount of cream-gathered cream for the benefit of the students who were taking the creamery course. At the close of that course I said to our instructor, "If we cannot make a better quality of butter than that we will stop taking in cream." I certainly would not risk the reputation of our dairy school in manufacturing the kind of butter that we made out of this cream-gathered cream. (Hear, hear.) Theoretically speaking, the cream-gathered creamery system is all right, but in practice I think it is a very difficult matter indeed to make a fine quality of butter. I think we will be a long time reaching perfection with the cream-gathering systen. I have opposed it, but the farmers and separator men seem bound to bring that system into vogue in this country. If we are going to follow this system, if it must come, and it looks like that in some districts, then we should insist upon having the cream pasteurized and churned as soon as possible after delivery, and have it delivered in a sweet condition. I would also say from experiments we have made on that point that the butter very often made from ripened cream develops what is known in Montreal as a "fishy flavor." Mr. Woodard will remember we sent forty boxes to Montreal last fall, some of it made from cream, made in the ordinary way, and some churned sweet, and all boxes made from ripened cream were pronounced by experts as "fishy." The

trade has very decided objection to "fishy" flavors. If we can overcome that difficulty in connection with the flavor of our butter, I think we will be making a decided progress towards improvement in the quality of our butter. (Applause.)

A MEMBER: What do you think about churning cream sweet?

Prof. DEAN: During the past summer, as soon as we have the cream separated, we pasteurize to the temperature of 180 or 185 degrees, run that over the cooler, cooling for 46 or 48 degrees, running from the cooler into the churn, using no cream whatever, and we have been experimenting by putting in about ten per cent. of culture or starter into this cream. In experiments we have been making, we churn the cream when it is cold, and as far as I can see there is little or no difference in the quality of the butter, although our experiments have not yet gone far enough. My judgment is that the sooner we can get the cream churned into butter after it comes from the cow, the better will be the quality.

There is a considerable loss of fat in the butter milk, and I think that can be overcome by running cream from the separator and cooling to the lower temperature. There are two weak points in the system. First, it means considerable loss of fat in the buttermilk, but the actual difference in the weight of butter was very small. The second weakness is it brings the churning in the hot weather in the middle of the day, and sometimes the butter would get soft, especially if you were putting it into prints.

A MEMBER: What about its keeping quality?

Mr. DEAN: It was much better than where it was ripened in the ordinary way.

Mr. WOODARD: It has been said that this cream-gathering system is coming to stay. I want to say that it is coming, but it is coming to the detriment of our butter trade in Canada. Mr. Mitchell and Prof. Dean have said they want the cream sweet, and I say we want the cream fresh; and I want to say again that Prof. Dean struck the key-note when he said we want to churn the cream as soon as possible after it is drawn from the cow, and that means freshness. I have investigated this cream-gathering system a little more than some of you have any idea of; I have done it on the sly, because I want to find out the cause of this poor flavor. I call it "old-cream" flavor. In every case where the cream has been kept over, you will find this same flavor. Last fall we had a great deal of this poor flavor in Montreal, and results go to show that not only in the cream-gathering factories was this flavor, but in factories where the cream was held over from one day to another, or made every other day, because they did not have cream enough to churn from one day's receipt of milk. If a man gets to like this old cream flavor, he won't object to it, but it is hard getting used to it, and the English people won't get used to it unless they buy it two or three cents less. We must churn our cream as soon as possible after coming from the separator, and I say if we are going to adopt this cream-gathering system we must deliver our cream as soon as possible to the central station after skimming. If you do not deliver it every day you will have trouble with this old cream flavor, and our butter business won't be worth the snap of your finger!

Mr. STONEHOUSE (Buttermaker at Kingston Dairy School): I do not know that I shall take up much of your time upon this question. There is one thing I would like to take up, and that is what Prof. Dean said to you regarding this interest of the Dairy School, and I am glad to know Prof. Dean is so jealous of the Dairy School. But it seems to me this question is something like a man driving along the road. He comes to the railroad crossing, he says, "I have got the right of way here, there is a train com-

ing; that train has no business to come while I am on the track." What is the consequence if he does not get out of the road? It seems to me that is just the way with the butter business with regard to the creamery system. and the separator system. The separator system has had the right of way, but this cream-gathering system is coming along, and just as sure as the train comes and knocks the man off the track, just the same this cream-gathering system will knock out this other system. It is going to take a great deal of education among the farmers to get this method to what it ought to be. I am engaged in that business myself, and the first thing, of course, is self preservation. When a man goes into the business, what does he go into it for? Not for the benefit of the public altogether. The first thing is for his own benefit. That is what I went into it for and the next thing is, I have got to guard my own interest, and in doing so, I have got to try and get a better product from the farmers. That is natural. I am satisfied I made a better grade of butter last year than I did the year previous, and I attribute that to some missionary work I did among the patrons. In the course of probably ten years we will see we have made some improvement. Looking back over the dairy industry, in one single year's work we probably cannot see much improvement; but look back over ten years and see what we have accomplished. And it will be the same with this cream-gathering system. When we look over ten years, of course we will see that we have made a great deal of improvement. Last year at Belleville I said I would try and get some of the patrons to pasteurize their cream at home. The results were not just what I had hoped for. We have got this fact to face. In the Province of Ontario I think our best creameries have turned over to the cream-gathering system. Eden Creamery, one of the best in the Province, has been driven almost out of business by the cream-gathering creamery ten miles from them that were making the butter up for a half a cent a pound less. St. Mary's Creamery, which was the largest in the Province, have adopted the cream-gathering system, and Lindsay has gone over to it. So you see, it is coming to stay, and we have got to face the matter; and if we cannot get the best price for our butter we have got to take the second best. The only thing we can do is to try and improve it year by year.

Mr. Burrows: I am still using the old-fashioned starter, and I have been to school. I have always had success with the old way, and I am afraid to use the other. I claim I make better cheese with a mild starter than I can without a starter. Next year I want to make good cheese, and I would like to get more light on this new culture.

Mr. Publow: You said you could make better cheese with a starter than without one?

Mr. Burrows: Yes.

Mr. Publow: You could not do it if the milk is in proper condition. The starter is beneficial if it is the right kind and the milk requires it. If the milk is properly taken care of at home it does not require it. You will find that 75 per cent. of the rejections were on account of the cheese being nasty and not clean in flavor, and Mr. Woodard told you yesterday that a great many of the objections were in the fall of the year. Very few acidy cans go to the cheese factory in the month of November, and a great many acidy cheese are made in November, and it is due to the makers using too much starter. More than half of the starters that are used in the country, made in the ordinary way in the factories, are a detriment to the cheese you make. (Applause.) If you require to use a starter, it is better to have a pure culture, but you must have a suitable way to control it. You need not ex-

pect to send to Guelph or Kingston and get a pure culture, and make it up in the ordinary way at the factory. You must have some experience, and do not use it until you know how to use it right.

ELECTION OF OFFICERS.

The report of the Nominating Committee was presented, and was unanimously adopted. The list of officers for 1905 appears on page 4.

Mr. DERBYSHIRE: I thank you as president of this association for electing me so many times. I would have been delighted if anyone had been ready to have taken the place. I am sure I have not sought the position but it has been handed to me by your own free will. I have done the very best I could in this position and I promise you that the very best service I can give you I will render. In 1905 I will be able to do better than ever. I thank you very much for this unanimous nomination and election.

Mr. DARGAVEL: On behalf of the Vice-Presidents and Directors I may repeat what Mr. Derbyshire has said. We hope to be of some use in the future at all events, and you may judge us by what we have done in the past. When I look back and see the progress that this Association has made in the past ten years, it seems to me perfectly wonderful. In those days when we had a meeting, it was quite a different meeting from what we have had this last few years.

The CHAIRMAN: Whe I introduced Mr. Ruddick in his first address here, I did not introduce him as Dairy Commissioner for the Dominion, but we are delighted to know that he is now appointed Dairy Commissioner for the Dominion, and while we all regret losing Prof. Robertson, we are delighted in having a bright young Canadian who will take the place of Mr. Robertson, and I will now introduce to you the new Dairy Commissioner for the Dominion, Mr. Ruddick.

PROGRESSIVE DAIRYING.

By J. A. RUDDICK, DAIRY COMMISSIONER, OTTAWA.

I thought it might be of some interest to you to know something of the progress of dairying in Canada, going a little more into details than we are able to go in considering the experience from year to year. We are not able to get statistics of dairying, but once in ten years, when the census of Canada is taken. The last two census years gave us some very interesting information along this line.

VALUE OF CHEESE AND BUTTER.

Province.	1890	1900	Increase.
Ontario	$7,569,338	$14,968,922	$7,599,584
Quebec	2,918,527	12,874,377	9,955,850
P. E. I.	48,448	567,802	559,354
Nova Scotia	47,675	127,007	79,332
New Brunswick	29,152	245,695	216,543
Manitoba	105,887	416,272	312,385
N. W. T.	17,332	156,637	139,315
B. C.	3,530	105,690	102,160
Total	10,697,879	29,462,402	18,764,523

Cheese Factories and Creameries in Canada.

Province.	Cheese Factories 1890	Creameries 1890	Cheese Factories 1900	Creameries 1900
Ontario	893	45	1,061	103
Quebec	617	111	1,207	445
P. E. I.	4		15	5
Nova Scotia	14	2	15	8
New Brunswick	9	1	49	13
Manitoba	23	8	49	26
N. W. T.	4	3	2	21
B. C.	1			8

One of the most striking things in these tables is the growth of cheese factories in the Province of Quebec. There has been a certain progress in all the Provinces during that time, the only Province which has not shown any progress in cheesemaking being that of British Columbia, there being only one cheese factory in 1890 and none at the present time. They found they were unable to successfully carry on cheese manufacturing in British Columbia. Another thing that strikes one is the growth of combined factories since 1890. We now have altogether 554 factories which make both butter and cheese.

The winter creamery business has scarcely developed to the extent it was once thought it would, but after all the combined factory has proved to be of some use at any rate during the past two or three years as an equalizer of price. I think the combined factory will be very useful in that way as tending to equalize price by preventing over-production in either butter or cheese.

Ontario increased from 1890 to 1900 about $7,000,000 in the value of her cheese and butter. The increase at the same time in the Province of Quebec was $9,955,000, and Quebec has shown the same rate of increase since 1900. There is no doubt during the past year Quebec has made more butter and cheese than Ontario. The total increase during the ten years, from $10,697,879 to $29,462,402. This is the total value of cheese and butter produced in factories during that time.

The total number of factories in 1890 was 1,755, in 1900, 3,521. The value of the product is nearly three times as much. That shows that the factories as a whole are getting larger instead of smaller.

In 1900, about $5,000,000 worth of cheese and creamery butter was consumed in Canada. Now, it seems to me this is a very much more important market. This we ought to consider. I believe if we were sending this amount of butter to South America or some other place, we would be making quite a stir about it, but since we have it just at our doors, it is the best market we have. This shows what an important market we have right at our doors, and I think we might give a little more attention to this market in various ways. It is something which deserves our serious consideration. The total value of dairy products made in Canada in 1900 was $66,000,000 worth.

The difference between $24,000,000 worth and $66,000,000 is the home consumption of dairy products in Canada, so you see it is a very enormous market, very much larger than our foreign market, and it does not seem to me that we have ever given this end of our business as much attention as it deserves. So much for this part of my subject.

We have heard a good deal regarding the matter of official inspection or grading of dairy produce, and persons here referring to this question are apt to point with some reason I grant you, to the success which has been attained, and which has followed official grading of dairy produce in New Zealand. I only want to point out this distinction, that grading dairy produce in New Zealand and grading dairy produce in Canada are two entirely different questions; and I know something of course of the situation in New Zealand, because I had a great deal to do with putting the grading system on its present basis.

Taking the grading of cheese. New Zealand cheese is all alike. The climatic conditions in New Zealand do not vary. They are never classified according to the month, and more than that they all go to one market. Practically every box is shipped to the London market. Our cheese go to the various markets of Great Britain and different characteristics are demanded for the different markets.

When I begin to think about the question of grading cheese, I must admit I am simply appalled at the undertaking it would be to carry on that work successfully.

It has been said the inspection should be done in the factories. As long as I have anything to do with the grading system in Canada, I should never consent to anything of that kind. When the cheese or butter is graded it must be under the control of the department or the officers who have to do with the grading. In New Zealand, when the butter and cheese is shipped from the factories to the grading store, neither the factoryman who made it nor the exporter who is handling it, have anything whatever to do with it. They are not allowed to handle it in any way. It is completely under the control of the officials in the grading department. It is marked with the official brand, and both the butter and cheese remains in this grading store until is loaded on the steamer, and no person has access to it. They build up their trade under the grading system. Our trade has grown to colossal proportions without anything of that kind, and to make it conform now to a system of that kind would be a big undertaking.

It may be possible we can devise some plan in this country to fit the situation, but so far as the cheese industry is concerned, I have very great doubts if we can ever successfully carry on an official grading as they have it in New Zealand. With the butter it would be somewhat different.

I do not intend to go into the merits of the cream gathering creameries as opposed to the separator system. I believe it is a very good thing that you don't take so much interest in the butter making. I believe it is a good thing to have cheese made in one district and butter made in another.

You have earned a reputation for manufacturing cheese in this district, and you make good cheese. You have spent a great deal of time and care and energy along a particular line. Now, if you were to convert factories or some of them into butter factories, you would have to learn that part of the business over again, and start where you started in cheesemaking several years ago, and this switching from butter to cheese and back again does not tend towards perfection in either line of manufacture.

A MEMBER: The Commissioner says in New Zealand the cheese is not classified by the month it is made. Why is it classified in Canada in that way?

Mr. RUDDICK: "Because there is a very great difference in the temperature. It is very largely a question of curing. If we could have September or October conditions throughout the whole season we would never

have any very great difference in quality. We can make cheese as good in June and July if we have the same conditions for curing, and September quality has become recognized as a standard because the temperature for ouring at that season of the year happens to be about right.

A Member: What are you going to do with the advice we have got from the previous speakers. The day before yesterday and yesterday we have been advised to go home and apply to our cheese factory that cool-curing system. If we are going to go home and carry out that advice, which we should do, and we have got that climate to cure our cheese down to the proper temperature, why should the exporter make a classification in the different months?

Mr. Wieland: There used to be only two months in the year for cheese as far as England was concerned, that was June and September. When I came up here I had instructions to buy June and September cheese, and then I was kicking against it the rest of the time what to do in July, August and October; and after a while I began to see that July cheese was sometimes the finest cheese of that whole year, and had a beautiful flavor. The month happened to be rather cool and pleasant, and the cheese from all sections showed a beautiful flavor and were certainly the finest that year. Since that time we have had a great many cool summers, and with the additional care the men have taken with the cheese we have had just as good cheese in August. We have a very hot two weeks in September, and sometimes the makes of the last half of August and the first half of October have been better than September cheese. The last time I spoke to you about oddities of cheese, I remember distinctly it was somewhere in Brockville, and the Chairman just sat on me. I held a revolution meeting down in the corner of the hall, and I got in all I had to say, and I claim the cheese merchants of Montreal are not doing a date business. They buy cheese on its merits, and I think that if you make a good cheese in July it will pass as the finest and get the finest price.

THE SISTER INDUSTRIES—DAIRYING AND BACON PRODUCTION.

By J. H. Grisdale, B.S.A., Agriculturist C.E.F., Ottawa.

I believe the Chairman could not stand this dose of butter and cheese any longer, and he had to have a little bit of meat, and therefore he induced me to discuss the bacon pig.

Dairying and bacon are sister industries, as you will admit, if you think for a moment of the products of those countries which are famous for dairying in the old country and in America as well. Go to Denmark, which is our strongest competitor in the dairying industry, and they are also our strongest competitor and those who beat us in the bacon industry. In Ireland they also do us up in bacon, and if you go to the best parts of Canada, those parts most intensely interested in the dairying industry, they supply us with the very best bacon. But, if you look over the figures of the bacon or pork production from the different parts of Canada, I regret this eastern part of Ontario and the part of Canada that lies east of here including Quebec and the Maritime Provinces, where dairying is the chief industry, you will see that it has not yet taken the position it should in the bacon producing industry. W do not appreciate the immense value of the by-products in the production of pork and bacon, and we do not apply them and use them as we should.

Through a long series of experiments, conducted at Ottawa and Guelph and all over America, we have found that with the average price of grains the cost of producing a pound of pork from the time a pig is two months old or weighs about 30 pounds until he is six or seven months old and weighs from 100 to 200 pounds is from 4 to 4½ cents a pound. Our experiments go to show that by judicious use of skim milk in connection with the meals or grains, we are able to produce a pound of pork for from one cent to a cent and a half less than where meals alone are used.

To get the very best results, it is quite unnecessary and disadvantageous to feed skim milk or whey in the largest quantity. The very best results came from where we fed from two to three pounds of skim milk to one pound of meal. With such feed we find our skim milk will replace sufficient meal, that we are really selling it for from 40 to 45 cents. a hundred pounds. If we feed our pigs from five to eight pounds a day, we are selling it at the rate of 42 cents one hundred pounds, as we increase the proportion of skim milk to meal, down comes the value of our whey or skim milk. Where we feed as high as ten pounds it came to 30 cents up to 15 pounds, we get only about 20 cents, and where we went as high as 25 pounds our skim milk was worth only 10 to 15 cents per hundred pounds. Wherever we have fed skim milk, we have got a very improved article of pork. The pigs have hardly ever been too fat. The skimmilk seems to induce growth of the very best kind.

In every case where we have fed skimmilk the bacon has been select, and when we killed it has been in every case hard and very seldom too hard, either. I think that there are a great many reasons why we should try to bring these two industries more and more together.

We have enough skimmilk produced in this eastern part of Ontario to fatten thousands and thousands, and hundreds of thousands of hogs. I was shocked with a farmer in the east who told me he was feeding from 25 to 30 pounds of skimmilk to every pig. There is a tremendous loss. He is getting only 15 cents a hundred pounds for his skim milk, whereas he may as well be getting 30 or 40 cents, making that much more money, and producing that much more bacon, and employing another man and making more profit, because even under conditions as they exist at present, you will admit that if you can produce bacon for 3½ cents a pound, there is money in it.

You say it costs us a whole lot to get these young pigs. Our experience with the raising of pigs has been that we can keep a good sow in perfect condition a year round for $15. Estimating the meal at one cent. a pound, $15 will keep that sow a year, including cost of pasture and allowing so much for cost of building and everything else, barring the labor, which is not included. From the average sow we may anticipate eight pigs if she gives only one litter, and that reduces the cost of the young pig below $2 if she gives two litters. It costs somewhere around $1 per pig. We may say $1 a pig. If you add $1.50 a pig to $7, which we say is the cost of a 200 pound pig, you get $9, and the very lowest price we have got this year has been $10 at Ottawa. I do not know what you get here. There is still $1 clear profit and the manure, and the manure that comes from the pig is of a very superior quality. I think that indicates a great profit. There are a few feeding skimmilk and meal alone, but that is not the only line of operation which we can follow to reduce the cost of bacon production. We have been experimenting along various lines to reduce the cost of producing bacon, and one of the principal items mentioned has been the introducing of pasture of different kinds and introducing the use of green foods of different kinds for both the young pigs and the sows.

Taking the sows from the time they come off the pasture in the fall we start to feed them roots. If they are not coming in very early, we put them off by themselves and give them practically nothing else but roots—not over a pound or a pound and a half of meal a day in addition to mangels. Mangels cost us $1.50 a ton, though we usually value them at $2. When they are gone the second month in pregnancy, it is necessary to reduce the amount of mangels or roots and increase the amount of meal because it requires a good deal more feed to support not only themselves but a litter of eight or ten pigs. If, in addition to the meal a small amount of skimmilk can be spared it is much better. We also feed leaves of clover. They are put away in stacks and put in cold water for a day or two before being fed, and then given to the sow. That is worth nearly as much per hundred pounds as skim milk. If we have not the mangels, a few beets in addition to the meal will prove very valuable. Turnips are not nearly so good, the pigs do not want to eat them. Sugar beets are usually the best feed you can give the pigs, but they are a little difficult to raise, and where we can raise mangels for $1.50, sugar beets cost us over $2 a ton.

If the sow comes in in March, the greatest attention has to be given her. For a day or two she must be starved, and then brought gradually on to her feed, inducing her to eat as much as you can of the very best kind of feed. It won't do to give her all dry food, because it induces constipation not only in the sow herself, but in her young, for the condition of the digestive organs in the sow will likely be the same in the young. If we can give the sow some skim milk we get the very best results.

At a very early date the young should be taught to eat. By putting some skimmilk in a trough where the sow cannot get at it, and where the young can see it and go there, in a short time they will begin to eat, and at the end of three or four weeks will be taking practically their whole nourishment from the trough instead of from the sow, and then the mother can be taken away, and the young remain there and bring the sow in once a day for two or three days, and then the thing is done. If there is one important time in the whole life of the pig it is just after the pig is weaning. It is the most difficult time to feed, and it is the most important, because the pig is hungry, and if you give him all he will eat the first thing you know he looks like a pail with four legs. That is the time you are losing money, because it is not only for the time being the loss is being incurred but for all the future of the life of that pig. Once start it off in that way, and it is practically impossible to get that pig back into right habits. Feed him a little bit at a time. Feed him frequently, and keep him always hungry, so that whenever he sees you he is looking up for more.

There is no possibility of succeeding with pigs that are given all they will eat two or three times a day, and allowed to get into that shape which I have described. A little bit of grain fed in addition to the skimmilk and finely ground, is the best thing you can give them. We experimented last year with feeds that took the place of skimmilk in winter. We found we were feeding four hundred pounds of oil meal, and the results were almost as good as where we fed skimmilk. It cost us about $3.50 a hundred to produce flesh or live weight in pigs that ranged from 30 to 125 pounds in weight, whereas with the shorts and skimmilk it cost us about $3.25, a little bit less. With all the other mixtures that were used, and mangels, there were shorts and oats and gluten meal, the cost was not over $4.

After the pig is three months old we start to increase the succulent food. In the first part of May we give a little bit of mangels, during the latter

part of May we usually have some green food in the shape of clover or oats, and in addition to the little bit of meal—usually shorts and finely ground oats—we found a small amount of skimmilk gives excellent results. Skimmilk has been found to give wonderful results with every ration with which it was fed:

With meal alone, cost reduced	$3.00
Fed with rape and meal, cost reduced	2.25
Fed with boiled potatoes and meal, cost reduced	2.80
Fed with pumpkins and meal	2.20

And one case we fed with corn meal, rape and a little bit of boiled pumpkins, mixed, $2. That was the cheapest pork we ever made. Boiled pumpkins, rape, peas, a little bit of meal and the skimmilk. The rape pasture we estimated at the rent and cost of working the land.

Mr. STONEHOUSE: How is buttermilk?

Mr. GRISDALE: There is practically no difference between buttermilk and skimmilk except in this: We have found if you are going to get the best results from skimmilk you must feed it in a uniform quality. Sometimes on Sunday, or in the evening, the skimmilk is sour. Now if you are used to feeding your pigs for four or five days on sweet milk, and then on Sunday they get sour milk, or if for any reason they are fed sour milk, indigestion is almost sure to occur, especially in pigs under four months. To overcome that we had to see that all our skimmilk was fed sour. Pigs fed on whey and grass grow and are in excellent condition for putting on the pounds when the time comes for shoving them. They are given a little bit of meal on the grass, and then they are finally brought in and boxed up. You can make quicker gains where pigs are kept in small quarters, and for a given length of time you can make cheaper gains where they are housed, especially if you use skimmilk in addition to the meal. Where they are fed on pasture, the gains are practically certain to be somewhat slower than where they are fed inside, and if you can feed skimmilk as a substitute for pasture, you are certain to make cheaper gains and quite as economical gains as the pasture, but if the supply of skimmilk should run short and you are not able to give them eight or ten pounds of whey or five or six pounds of skimmilk, a little pasture will prove a most excellent substitute.

A MEMBER: How many pounds of mangels do you feed the sows in winter?

Mr. GRISDALE: That will depend. The first part of the winter we try to feed them practically all mangels and feed as high as twenty-five pounds to the sow. That is pretty high feeding, but after they have been in a month we have to reduce that and bring it down to fifteen pounds, and after another month we reduce it still and bring it down to about six pounds. When she is not in pig make her live on that, and she will live on it fine; but as she gets in pig it takes more feed, and we must not distend her digestive organs with a large amount of mangels.

A MEMBER: What about the quality of the skimmilk you feed young pigs?

Mr. GRISDALE: If you feed a uniform article it does not matter whether you start it on sour milk or sweet milk, but you have to feed a uniform article to the young pigs. I would just as soon feed them on sour milk as on sweet. I have got just as good results from feeding on sour milk as sweet, and the worst results from feeding them on mixed.

A MEMBER: Do you feed the sows whey while suckling pigs?

Mr. Grisdale: A small amount. I have not had much experience with whey. Before I came to the farm at Ottawa I was a dairyman, and we used to feed whey to our sows, and it never seemed to do them any harm.

Mr. Wieland: How does feeding compare here with the Danish method of feeding? Our Society has taken $4,000,000 or $5,000,000 worth of Danish bacon in the year, and $40,000 or $50,000 of Canada bacon, and I would like to get as much Canada bacon as I can.

Mr. Grisdale: I may say that we feed the same as the Danes to a certain extent. We feed skimmilk and the by-products from our flour mills and our rough grains. In addition they feed a considerable amount of corn and a considerable amount of green feed. They feed bran ground up fine. But one thing where the Danes come ahead of us is the uniformity of the type of pig they breed. They tell us wherever you go in Denmark you find a pig the same. All through Denmark the same class of pig, the common Danish pig crossed with a Yorkshire boar. This gives a pig of fairly good type, and the kind of pig the Englishman seems to like. In addition the Danish pigs are fed in close quarters. There is practically no pasture. There is no effort to reduce the cost in the use of skimmilk, and as a consequence the Danish bacon costs them to produce something like $6 per hundred pounds. We are able to produce our bacon for a good deal less, because under the most adverse conditions, where the pigs are thrifty our bacon does not cost us more than 4½c a pound.

We are getting our feed cheaper and using a good deal of pasture, and our chances are exceedingly good to beat those Danes on the English market, but we must improve the quality. If we are to sacrifice the use of our pasture it would be a great loss; but I think we can still use our pasture and corn if we are willing and if we are careful to mix with it a certain proportion of skimmilk. I believe the dairying industry will be the making of the bacon industry in this country. Without the dairying industry it is practically impossible to secure the finest quality of bacon, and with the dairying industry we can secure a good quality of bacon.

Every man who sends 200 lbs of milk to the cheese factory should have twenty pigs. Where he is getting whey it takes more, but in the winter season with the skimmilk he can get along with a good deal less skimmilk than whey.

I would like to see this bacon industry developed. I believe the cheesemakers, and creamerymen could do a wonderful lot towards advancing this industry in Canada by speaking to the farmers about the utilizing of their by-products. Many farmers give a hundred pounds of whey to three or four pigs: many others give two can fulls of whey to half a dozen pigs. That is a deliberate waste.

Mr. Putnam: It is said by packers that only about 60 per cent. of the hogs raised are suitable to make what they call sizeable bacon, suitable for the English market. Even with all our education we have not reached perfection, and we should use our best efforts to increase the quality. I have received word from a number of sections in the Province stating that they do not want Institute men who will talk the bacon hog. They say we have heard too much of the bacon hog. It may be they have heard too much about it, they certainly have not put it in practice, and as our Minister of Agriculture for the Dominion said last night, it is high time the farmer practiced what has been preached.

A Member: I have a brother-in-law who is feeding in the neighborhood of about 400 hogs every year. He is trying to produce the bacon type of hog. That man cannot get from the packer the price he should get for

producing that class of hogs. Why? It is just on the same lines as our cheese question. The packer will not protect the man in his business. Now is it not high time that we, as producers of bacon and cheese, see to it that we get the protection that we should get if we produce the article?

A MEMBER: What breed of hogs do you keep on the Experimental Farm?

Mr. GRISDALE: Yorkshire, Tamworths, and Berkshires. We did have Chester Whites and Poland Chinas and Durocs, but those three breeds we have abandoned. They did not prove as suitable for the bacon industry as did the others. I might say that I consider Chester Whites are an excellent breed for bacon production, provided you can get a good type, just as are the Berkshires. You can get Berkshires quite unsuitable, but you can get them of good formation and then they make very good bacon indeed. Use 400 pounds of shorts to 100 lbs. of meal. If you cannot get shorts, get finely ground bran, bran, shorts, and oats are pretty near the same thing.

A MEMBER: I know a few farmers who are now practicing feeding whole oats from the time they are weaned. Have you ever tried that?

Mr. GRISDALE: Yes, we have fed whole grains and our experience does not agree with yours at all. Where we fed whole oats, we lost 12 per cent. of the oats from their not being digested in the animal at all. Where we fed whole barley we lost 5 per cent. The only grain that can be fed whole without any loss are peas and corn. These two kinds of grain are digested perfectly by the animal, whether fed whole or ground. The finer the oats are ground the better it is for gains made and for the health of the animal.

This winter we carried on an experiment to determine the value of finely ground and coarsely ground oats. Where coarsely ground oats are fed the animals are very unhealthy and make very slow gains, whereas when oats from the same bin are taken and ground fine the health of the animal is very much better. Where the oats are ground only once, the hulls block up the digestive organs.

Mr. PUBLOW: It is my intention to hold a cheesemakers' meeting at as early a date as possible in every syndicate that is formed, and I want the cheese men to come to that meeting and bring as many patrons as possible, and as many cheesemakers from other factories as well. Come to the school if you can, where I can have two or three weeks or a month with you, but at this meeting of cheesemakers, I will be able to spend all day and have a talk that will be of some benefit. Two of the common defects which are general throughout all districts, are those that are largely in the hands of the maker, and that is acidy cheese—using too much acid—and cheese poorly finished. The cheese are acidy, not because you give them too much acid, but because the curds are not sufficiently firm. About the starter business, let me say when milk is over-ripe, you cannot get the curd firm and elastic before much acid shows. These cheese may pass a buyer, and thousands of them pass the buyers at a week old, three days old, perhaps eight days old, but there is not a buyer in Montreal who has bought these cheese and held them but was disappointed. They are weak in body and texture, and have soft rinds.

What we must aim at is to have our cheese go to the consumer in good condition. Please stop making these poor cheese. Supposing they have passed, I would say that hundreds of cheese from this section and other sections have passed the buyers and have been poor cheese in a few weeks. When the buyer says to you, your cheese are a little acidy, please try and remedy that, and stop using a starter of any kind.

A Member: How do you find Monday's cheese? You have dwelt a great deal on over-ripe milk. As a rule how do you find Monday's cheese from the factories?

Mr. Publow: As a rule I find Monday's cheese all right in factories where there is plenty of help. I usually find the old milk coming in Monday better than Sunday night's on Monday. In small factories we will find Monday and Tuesday cheese wrong, because they are short of help. A man has too much to handle; he has too much work to do at the right time. If you could get clean milk that will sour, there is nothing better for a starter, but it is so difficult to get a can of milk that will sour clean, that it is not safe to make starters in that way. It is better, if you have to use a starter at all, to prepare for making one. Get a small vessel that will hold fifty pints of milk, heat up the milk to 180 degrees to purify it, and destroy any bacteria or plant life that is in the milk, keep it there for ten minutes. Half an hour won't hurt it, or an hour won't hurt it. Cool it down rapidly to 70 degrees. If you have a culture from Guelph or Kingston, just carry out the instructions received with them. All cultures sent out from these places have instructions or directions on them. If you never made up your starter, you might be entirely astray, the culture may not be clean. It will be clean when it has a nice sour, pleasant taste. Usually from these cultures the first propagation or two will not be right. Propagate once, twice, or three times and you will find it will be better. If it is getting worse, do not use it. From Kingston it comes in beef broth, and will be a little beefy. From Guelph it will come in milk form; still it will have a little flavor of what it has been growing in.

Now as to the finishing of the cheese. That is within the reach of all makers, and if you are not mechanic enough to put the cheese up looking neat and attractive, please get out of the business. I saw hundreds of cheese in Montreal, passed as finest because they looked well. If a man goes and looks at a cheese and it looks nice and tidy, he is favorably impressed.

Do not think that just making the cheese is all you have got to do. We want first-class men, men who will go out and talk to the people, invite the patrons to come and see the factory, and make them feel that it is their factory and that they are there working for them. Get them interested in the work and show them that what they do in caring for the milk they are doing for themselves. If the milk comes in over-ripe the remedy is to cool the milk. One thing we must do with the milk in this country is to cool it more than we have been doing. We make the cheese meatier by retaining more moisture, and the more moisture we retain in the cheese the more need for cleanliness. You cannot make this soft, meaty cheese and have that clean flavor unless you get better milk. We want cool milk as well as cool rooms for keeping the cheese after they are made. Do what you know to be right as well as you know how. If you will do that we will make very good improvement in our cheese this year. Do not be selfish.

I have seen the time when it tickled me to get a little more for my cheese than my neighbor. I have lived to learn that was a mistake. If we could get the buyers to say I will come and buy your cheese for just what it is worth, it would be better for all concerned. I hope the time will come when every cheese is bought on its merits on the board.

I have said a good many hard things to you. I have said it for the benefit of the best men. It hurts me to go to Montreal and have them say to me: "What do you think of Brockville?" We must keep up our reputation, and I say to you: "Don't be satisfied with having a good clean factory, but get your neighbor to do likewise."

RESOLUTIONS.

Moved by Mr. John R. Dargavel, seconded by William Eager, that the thanks of this Association are due and hereby tendered to the various railways which have so generously given all our members reduced transportation; to the town for granting the free use of this building; to the ladies and gentlemen who added to the interest of the evening meetings by their excellent music; to the citizens of the town generally for their hospitality towards our delegates, and to the press for the excellent reports given of the proceedings of the convention. Carried.

Moved by G. G. Publow, seconded by John H. Singleton, that this convention would recommend patrons of factories to cool all milk intended for cheese making to 65 degrees in preference to depending solely on the use of the aerator. Carried.

A Member: I think one thing should be spoken of previous to putting that resolution. We have with us members from a large number of cheese factories. It is at this time of the year that we can put in ice, and I think that is something we should take home to the patrons, and advise them to put in ice so that they can cool their milk down to 65 degrees.
Directors next year, will have an aim not only to do as well, but that they cooling. Now it is all well enough to say to the farmers cool the milk to 65 degrees, but it is not so easy for the farmers to do it. You must get some simple means, and there is nothing more simple than having the can set into cool water. If you have a running stream you can easily do it.

The President: Mr. Putnam, Superintendent of Farmers' Institutes, has agreed with the Board of Directors that he will look over the ground, and in connection with his Institute work he will have four of these dairy meetings, possibly not quite so large as this, or as many speakers, but we are going to try and have them larger, and I am going to try and be present at each of these meetings. Mr. Publow has promised that if you will write him today and start syndicates and arrange for a meeting in these syndicates he will attend there and we will get right into business shape early in the season.

The Hon. Mr. Fisher told me this morning that he never had attended a meeting with such a large number of intelligent people, and that he never saw better order kept at any meeting. I believe it has been the best convention with regard to information that we have ever had.

Dr. Stark, (Ottawa): I am very pleased indeed to be able to be with you. I came up yesterday afternoon at a great deal of inconvenience to myself to speak to you on the matter of the freight rates. Last summer I was appointed by the cheese boards in the eastern portion of the Province to look into the freight question, and we got the matter in pretty good shape to bring before the railway commission, when Mr. Blair resigned, and left us in the position we were in in the spring. I think before next season opens up everyone should endeavor to get resolutions from the different boards, and that we should wait upon that railway commission, and endeavor to impress upon them the necessity of reducing the freight rates on dairy products. Last year we paid 10c per hundred, and now they have raised it to 14, that is 6c over and over what it was in 1903. I am going to agitate the question in my district, and I won't stop till I get an answer. I intend to hold public meetings, and I trust that strong resolutions will be passed at these meetings, and that we will go before the railway commission, and get a reduction of some kind. The rates are exceedingly high, and the passenger fare is too high. On some future occasion when we have more time, I shall make it my business to attend, and discuss this matter at greater length with you. (Applause). The convention was then brought to a close.

Dairymen's Association of Western Ontario.

ANNUAL MEETING.

The thirty-eighth annual meeting of the Dairymen's Association of Western Ontario was held in the City Hall, Stratford, on January 17th, 18th, and 19th, 1905. The hall was beautifully decorated with flags and bunting, and the meetings were all well attended. The handsome cup donated by the cheese buyers occupied a prominent place on the platform and was much admired.

THE PRESIDENT'S ADDRESS.

By J. N. Paget, Canboro.

I have the privilege this afternoon, as President of the Dairymen's Association of Western Ontario, of welcoming you to this thirty-eighth annual convention of the Association. I am pleased this afternoon to see so many here, and would take it to indicate that the interest in this great industry that we represent is not growing less. Perhaps the people who are assembled here have not come altogether because of the interest they have in the work of this Association, but because of the greater interest that they have in the work that the Association is doing under the Department of Agriculture of the Province of Ontario.

The year 1904, as compared with that of 1903, does not bear a very favorable comparison, and it has been looked upon by the dairymen of our country as rather a poor year, owing to the very much lower price that we receive for our dairy produce, particularly with the cheese, and as we look at the matter from a standpoint of dollars and cents, there certainly has been a very marked difference in the matter of cheese alone. It has not been altogether a matter of lower price, but we have had a smaller quantity made. According to reliable estimates that are now procurable, it is considered that there were about 300,000 less boxes of cheese made in Canada during 1904 than there were in 1903. That, altogether with the lower price received, has made a difference of about $7,000,000 for cheese alone during 1904 as compared with the year 1903, and that is a large sum of money.

With regard to the butter, I am pleased to be able to say that it has not been so bad. We have succeeded in exporting a considerable larger quantity of butter during 1904 than we did in 1903, and the price received has been fair, and there is not much to complain of on the part of the producer. The money received for butter sent from Canada during 1904 has exceeded that of 1903 by about $2,000,000. (Applause). That helps the dairy situation all around. There is another feature that has also had serious effects on the farmers, and that is the allied bacon industry, which is very closely identified with the dairy industry. There has been a decrease in the export of bacon to the extent of one and a half million dollars. So that, summing up the whole situation, there has been received by the agriculturists of our country who are engaged in the dairy and bacon industry about $6,500,000 less during 1904 than in 1903.

The question that appears to confront the agriculturists to-day as well as the Department of Agriculture and this and other Associations is, is there no possible way whereby this decrease can be remedied. I think a great deal might be done that is not being done. I think all over this Dominion there are farmers who are keeping cows that are not paying their board. I was very much pleased in reading the other day the statement made by the Hon. Mr. Fisher, Minister of Agriculture, that he proposed during this year 1905 to introduce—in fact I believe he has already introduced in some localities —a cow census. What is meant by that is to find out in certain districts or localities the number of cows kept and the quantity of milk received from these cows, so as to make a comparison of districts or localities. It is a well-known fact to-day that a cow that will produce 2,500 or 3,000 pounds of milk in a season is not a profitable cow. How many of you farmers in this audience to-day in this old dairying district of Stratford, where you ought to have a higher standard of cows than they have in other localities, are keeping on the farm, cows that are not producing as much milk as they might produce? The ordinary cow should produce 30 or 35 pounds of milk every day. That would give you about 6,000 pounds of milk in a year. My experience of twenty years as a cheese manufacturer, coming in contact with the farmers, perhaps not as progressive a class of farmers as there is to be found in some other sections of the country, but yet fairly so—my experience has been the very opposite from finding farmers with herds that yield an average of five thousand or six thousand pounds of milk. In fact, when I go over my territory, and make an estimate of the amount of milk I am likely to receive during the year, my custom has been to figure on the basis of twenty pounds of milk every day to a cow, and very frequently when we have a dry season I have received less than that amount. Now, it is very unbusiness-like for a farmer to keep a cow that only gives him twenty or thirty pounds of milk a day, when by judicious selection and proper breeding he can have a cow that will give 45 pounds of milk per day. And the difference between 25 and 45 would be clear profit to the farmer, because the farm cow that will only give 25 pounds of milk will give you the same trouble to milk her, will give you the same trouble to feed her, and will cost you as much for food she eats as will the better cow. If that was considered all over the country, and if only cows that would pay their way and give a profit were kept, we could overcome to a very large extent the deficit that has occurred during the year 1904. I believe it can be done, and I believe that is one of the features that the producers want to look at in the near future.

There is also the work that this Association has been doing during the past year. I do not propose to go into this in detail, because Mr. Barr our Chief Instructor will produce a report to this convention during the session, giving in detail an account of that work; but under the direction of the Department of Agriculture we have been carrying on work during the last year and the year previous a little different to what we were doing in former years. We have succeeded in covering under the jurisdiction of this Association about three-quarters of the cheese factories and creameries with our instructors, and the work of these instructors has been not alone to instruct the makers in the factory to produce better cheese, but they have also come in contact with the producers of the raw material in order that they might help them in producing a better quality, and in sending a better quality of milk to the factory. But we have not at all been able to reach the patrons to the extent that we would like, or that we purpose to do in the near future. We would like that the instructors would come in contact with every patron, with

every man who is producing milk. They do not go out in the country to give the impression that they are instructors, and that they are going out there to spy in order to get an opportunity to prosecute. That is not the purpose of the Association in sending out the instructors; it is rather that they may go out and help the men who are sending the milk to the factory, to help them to take better care of their milk and keep it sweeter, and to send it to the factory in the very best condition that is possible. It is truly impossible to manufacture a fine article of food from an impure or adulterated or uncleanly material. I may say that we have accomplished a great deal in regard to this work, and while we have not accomplished all that we mean to do, I think we are safe in saying we have been able to produce as fine, if not a better quality of butter and cheese during the year 1904 that has ever been offered any year in the history of the dairy trade in Canada. Particularly does that apply to butter. I think there was a very decided improvement in butter, especially so in certain localities; and we have been able to make the finest cheese that has ever been sent from Canada to the Old Land. We have evidence from the other side of the water that leads us to believe that they are realizing that our goods are being made better than they were some years ago.

Most of you have heard of the attempt recently made in Hastings, England, to cast discredit upon the dairy industry of Canada by charging us with sending to England what is popularly known as "filled" cheese. A firm of grocers in Hastings purchased some Canadian cheese from a London wholesale firm, which they sold over the counter retail. A local food inspector purchased a pound, and submitted a sample to the public analyst for that borough, who analysed the cheese and reported that it contained "20 per cent. of fat not derived from milk." The analyst described the sample as a part of a "loaded" or "margarine" cheese, which can be sold under the British Food Act only in a package that has "Margarine Cheese" printed on the top, bottom, and sides in capital letters. However, another sample of the cheese was obtained and forwarded to the Government Laboratory at Somerset House—the highest authority in England—for analysis. Their report completely vindicated our Canadian cheese, as it stated that the cheese in question did not contain any fat other than milk fat. The report also stated that the amount of milk fat contained in the cheese in question amounted to 43.0 per cent. (Applause). You all know that there is no filled cheese made in Canada, and we do not want to have any of it made in Canada. Another charge that was made against Canadian cheese was that it was merely an imitation of the English Cheddar cheese. Why is that statement made? Because the Canadian Cheddar cheese was coming in the market and taking an equal place with the English Cheddar cheese. I believe that was the prime reason; because the improved condition of our cheese was setting the people over there to think that their competitors in Canada meant to make a cheese that was their equal; and if we continue improving as we have been doing we will make just as fine cheese as the best English Cheddar.

There is another thing that I think we should look to in connection with this industry, and that is that we should have more co-operation on the part of everyone connected with it. We call ourselves a co-operative association and so we are, and co-operation must take the first place in our work: but I do not think there is as full co-operation on the part of all concerned as there might be. I think we should have fuller co-operation from the buyers of our cheese. Perhaps there is co-operation between the buyers and the maker, but the buyer has not been co-operating. I do not say this for the purpose of reflecting upon the buyers, but I say that some of the buyers

do not co-operate with the Association and with the dairy industry as they might do. They can assist as much as any other element that is connected with the trade to-day, and I trust that, as we enter upon the year 1905, whoever may be officers, or who may represent this Association on the Board of Directors next year, will have an aim not only to do as well, but that they may take up the motto that was given to us in St. Thomas a year ago by the Hon. John Dryden when he said: "May 'Excelsior' be the word of every Canadian Dairyman during the year 1904." I will say to those who will take the lead in furthering this great industry during the year 1905 that they should take up that word, and excel in everything they undertake.

THE DIRECTORS' REPORT.

The report of the Directors was read by Mr. Johnston:

The Season. Not since 1897 have the producers experienced so low so low prices for cheese as during the past season just closed. This was caused chiefly by a considerable quantity of the fall cheese of the season of 1903 being carried over winter and thrown upon the market just as the new season was opening; and this cheese having cost extremely high prices when bought during September and October of the year previous, brought the holders heavy losses and caused them to be very timid in taking hold of cheese during 1904. However, the weather conditions have been very favorable upon the whole for the production of milk in large quantities of good quality, and these conditions, together with the improved system of instruction, have enabled the factorymen to turn out we believe finer quality of both cheese and butter than during any season previous.

Market Prospects. We are pleased to be able to refer to the very healthy condition of the cheese market at the present time, and believe that for 1905 the producers will experience good prices for their dairy products.

Prices of Butter. The experience in the butter industry during the past season has been the reverse of that of cheese. The quantity produced and exported from Canada has been considerably in excess of the season previous, and the prices upon the whole were very remunerative; so that for the producers of butter, the past season has been an encouraging one, and more satisfactory than we had anticipated at the opening of the season. At no time during the season was there an accumulation of either butter or cheese in the factories. The goods were placed on the market as soon as ready for shipment, and this, we believe to be the only satisfactory system for the marketing of dairy goods to both producer and buyer.

Efforts of Your Directors. The chief effort of your directors during 1904 has been to further develop the improved system of instruction recommended by the Hon. John Dryden, Minister of Agriculture, two years ago, and adopted by the Association since that time. The effect of the low prices experienced, especially in the early part of the season, had a tendency to make milk producers indifferent as to the care of the cows and milk, and we found it a little more difficult to enlist their co-operation in our efforts to improve the quality. But upon the whole we are making progress in the improvement of the quality, and in some sections that improvement is very marked both in quality and style. By going over the ground very carefully with the assistance of the chief instructor, we were enabled to organize two additional groups of cheese factories. Some difficulty was experienced in securing suitable men to act as instructors, and some of the work had to

be neglected on account of being one instructor short. The same number of instructors was engaged in the creameries as in 1903. A full report of the work will be given by the chief instructor, and your directors will not rest satisfied or abate their efforts until the ideal at which we aim has been accomplished, and every factory and creamery in Western Ontario is included in one of these groups.

Weak Points. During the season considerable fault was found with the quality of the cheese boxes used. The sides were cut too thin, and in many cases too many pieces were used in the construction of the lids and bottoms making a weak, flimsy box throughout. We would strongly recommend that boxmakers cut the siding of the boxes not less than four to the inch, and not more than three pieces in the formation of a head or bottom. There were a number of instances where cheese were sent to the station in boxes with green heading causing serious damage to the cheese. A circular was sent to all factorymen calling their attention to the danger of using boxes not properly seasoned, and asking them to be careful to protect their cheese upon this point. To illustrate the bad effect of putting cheese in boxes with green heading, we have placed on exhibition at this convention a cheese delivered to the buyer in the condition we have mentioned, and the damage done being very apparent. We would ask every factoryman to examine this cheese while here, and be convinced for himself that he may obviate this danger in future.

Winter Dairy Exhibition. Cash prizes have again been offered for a winter dairy exhibition amounting to $360, and the challenge trophy so kindly put up by the buyers three years ago will be again competed for The entries of cheese are in excess of any previous year, but the entries of butter are not quite up to last year. The classes in which prizes are offered for cheese are, September White, September Colored, October White, and October Colored, and in butter, 56 lb. box of creamery butter for export, 10 one lb. prints creamery butter, 56 lb. box October creamery butter. There is a little less money offered in prizes than in 1903, to enable the Directors to set aside some money to pay for a number of experimental cheese which were made by the instructors under different conditions, and which we have placed here upon exhibition that they might be a means of education in that direction.

Dairy Paper. We are pleased to be able to inform you that there is now a paper devoted exclusively to dairy interests, known as the Canadian Dairyman, being published in Canada. This movement, we believe, will be the means of filling a long felt want, and we would most strongly urge that every dairyman in Western Ontario should give his most hearty support to this enterprise, and that your Board of Directors for 1905 give whatever support is in their power.

Speakers for Annual Meetings. Our efforts in supplying speakers at cheese factory annual meetings have met with much encouragement, and is heartily supported by both the factorymen and the Agricultural Department, so that in the future it is expected that more meetings will be attended and more efficient work done than we have yet accomplished. All of which is respectfully submitted.

Mr. Johnston: I move the adoption of the report. The motion was seconded and carried.

DAIRY HERD RECORDS.

By J. H. Grisdale, Agriculturist C.E.F., Ottawa.

I think your President struck the key-note of the situation when he said that the rather unfortunate condition of affairs, so far as our dairying and pork producing industry are concerned in Canada, must be remedied not from the manufacturer's end so much as from the farmer or producer's end, and I intend to speak along that line this afternoon, particularly so far as the dairying industry is concerned. Your President stated that the average cow was not producing sufficient milk to enable the owner to make a profit out of her. He was probably not aware that according to the last census in Canada (1900) the average Canadian cow produced two thousand pounds of milk, which at the value during the past year would give an income of about $14 or $15. Now, I do not know how it is with you where foods are cheaper than with us, but that would not pay for half the keep of a cow in the Ottawa Valley or in Eastern Ontario or in Quebec, and I feel confident that it would not anything like keep a cow in Ontario. In Ontario it is a little bit better according to that same census, and the Ontario cow produces about three thousand pounds of milk in the year, but even that, you will notice, falls far short of leaving any profit for the producer, since it would only pay about $21, and the average cow, according to the last reports I have seen from Guelph costs about $30 to feed. It costs more than that with us. We have to pay nearly $40 to feed and keep a dairy cow the year through. "Now," you say, "we are keeping our cows at a loss. Maybe we are feeding them a lot of ruff food that cannot otherwise be fed, and if we take that from off the farm and sell it, the farms would soon go down, and in a short time be in the condition we found them ten or fifteen years ago, before the live stock industry took the position it now occupies." But while we are holding up our farms by keeping cattle that do not pay us, why should we not keep better cattle, and not only keep up our farms but get a good profit? The cheese makers may get along with making a little money, but we farmers want to make all we can. We can hardly conceive what can be done with the dairy cow. How are you going to get it? Just go out and buy is one way; but the better way is to breed. If you want to start up quickly you must buy. I have heard a learned Agricultural College professor state that any cow might be a good dairy cow regardless of form. I do not believe it. A good dairy cow can be distinguished almost in every case by her form and conformation. Odd exceptions occur, but we know that exceptions prove the rule, and in almost every case you can tell a dairy cow by her conformation, and by her general appearance. She must have these qualities permanently marked, which you have heard discussed so frequently. She must have large digestive organs, and she must be an animal prone to produce milk rather than lay on flesh. Then after you have your herd of cows, you must know them. We have been carrying on some experimental work at Ottawa, and I believe that is what induced your directors to ask me to attend this meeting and address you. For some years we have been trying to interest the farmers all over Canada in the improvement of their dairy herds.

The speaker then described the work done in developing the dairy herd at the Central Experimental Farm, using similar language to that appearing in the report of the Eastern Association on the same subject. He then proceeded to say:

How are you going to know what each cow is doing and how you shall feed it? If you are going to succeed you must know every cow, and that is

what we have been trying to get the farmers of this country to do, to learn, to know each cow, not to know that her name is Bess, or that she is spotted brown or white, but to know what she will do at the pail, and to know what she will do every day. We have been sending out to farmers for a number of years forms ready ruled and printed with the days of the week for the pounds of milk night and morning, and spaces ruled at the top of the column for the name of the cow, in addition a small scale is required upon which to weigh the milk. I do not think the farmer should turn away from a little extra work in that regard because it is going to resolve itself into a pleasant duty. It will only take three or four minutes to do the whole business, and you can secure the scales for from $1 to $1.50.

A MEMBER: What scale do you use?

Mr. GRISDALE: A small spring balance. I do not know that they are on sale here, but you can secure them from the Department of Agriculture of Ottawa.

A MEMBER: Are they not contrary to the law?

Mr. GRISDALE: Not for use in your stable. They are contrary to use in selling or buying, but if they are contrary to law, you can buy a small platform scale with the weights so placed as to counter balance the scale, and all you have to do is to shift the weight along the platform. It will cost a little more but it will be well worth the extra expense. Wherever I have succeeded in introducing farmers to adopt this system they have been well pleased with it.

We should be pleased to send to any of you who would care to have them, sufficient forms for a year or two years or a month. If you do not want to commit yourself to do it for a long time, try it for a short time. All you require to do is to write to the Experimental Farm, Ottawa, or to myself, and all the forms will be sent to you by return of mail.

How Shall We Feed Properly.

I will give you the history of a day in our stables. To start with: At half-past five in the morning we feed a mixture of ensilage roots and cut straw, and on this we feed a portion of meal which is allowed to each cow for that morning; immediately after it has been eaten up.

A MEMBER: What meal do you feed?

Mr. GRISDALE: The meal this year is bran, oil meal and oats, it varies from year to year. One half bran, one quarter oil meal and one quarter ground oats. You see that is a meal of a narrow ration, and when added to ensilage and straw makes a very good ration. This ration possesses the great desideration of succulence, and is rich in protein, and in addition we feed clover hay. The cows are left to ruminate the rest of the day until half past three, when a similar portion is given. They are fed only twice a day, and we find they are giving us better results than when we fed them three times a day. The cows are not let out. They are watered in the stable, and they are curried every day. You say you cannot afford to curry your cows, but I say you cannot afford not to do it.

A MEMBER: Did they get anything from half-past five a.m. until three or four p.m.?

Mr. GRISDALE: We feed them at half-past five, and it takes about an hour to eat that portion, and about seven they get a small feed of clover hay, and that is the last feed they get till half-past three; and I know that is better than feeding them three times a day because we have tried experiments and have taken groups of from 8 to 10 cows, and have fed one group

for a period of a month three times a day, and the other group twice a day, and then have changed them around and fed the group that got fed twice a day three times, and *vice versa*, and at the end of two months we found that the cows that had received the two feeds a day turned out better than the cows that had been fed three times a day. The cows have more time to ruminate. Taking food into the body has nothing to do with its digestion. It is practically gulped down, and the cow lies down and chews her cud and ruminates, and that is when the digestive process is going on. If you give her lots of time to do that she is going to make the very best use of her food, and then we find that she eats almost as much at two feeds as she will at three. We give them all they will eat at each time, and find that those getting two feeds eat within a fraction as much as those getting three feeds. Another experiment we made was taking two groups and feeding them in the same way night and morning. One group got dry clover, hay, and meal, and the other got roots, ensilage, and meal, and a little bit of hay. The group that got ensilage, roots, and meal, decreased in returns only at a normal rate. By that I mean that at the end of a month they had fallen from 8 to 10 per cent. of the yield of milk. They were advanced in the period of lactation. While the group that were getting dry food and had advanced about the same period of lactation, had dropped about 22 per cent. So that you see we lost something over 12 per cent. of the milk yield by feeding them on dry food instead of succulent food; and we are forced to the conclusion that it will pay any farmer who has not already got a silo or root cellar on the farm to invest in one or the other.

As to the value of roots and ensilage; we found very little difference except in the case of sugar beets which gives a much higher return. The cows kept up the milk the month they were fed on sugar beets, and did not go down at all. We found it best to curry the cows, and keep them in good condition. Probably the easiest method to keep them is to clip around the quarters and the flank. We use a Chicago flexible shaft clipper which costs $18 or $20, we also have one that costs $10. You can use the ordinary horse clipper that costs $4 or $5, and you can clip four or five cows with that in one hour, so that the question of clipping is a very minor one. It adds very greatly to the quality of the milk, and I am sure that every factory man of the country would bless you. It is one of the factors I know of that is most conducive of pure milk. The currying of the rest of the animal is important. We have not the exact data to show the per cent. of increase from this currying, but it has been tried elsewhere; and they have found about 5 per cent. Our experience goes to show more than that. There is certainly nothing that would be better over and above the feed than currying.

Another point is as to the exercise necessary. We have not found it necessary to let the cow out at all, except in very favorable weather conditions. Many of our cows never left the stable from the first of December until the first of April. The water is in the stable, and I think if there is one thing in dairy economy more important than another it is to get the water into the stable, and it can be done for a very small amount. I know this from actual experience; because I put it into a barn out in the country a couple of years ago, where we had to bring water 500 feet, and the whole cost of digging the drain, putting in the pipes and pump, hand pump, was only about $60 for 20 cows. Now when a man can put in a whole plant for $3 a cow he will save much more than the expense in the trouble he will save himself in one year, in the worry of cleaning out drinking holes, and

in the worry of pumping out in the cold air, and there is no loss in the weight of milk, because it is very certain that every time we let our cows out to drink we are bound to lose.

A MEMBER: Are your cows tied up all the time?

Mr. GRISDALE: We tie them to a single stanchion in the middle of the stall with a chain that runs up and down, and I think that is better than having a rod on the side of the stall; because the cow can get to either side and can lay down on either side comfortably and has greater freedom than with any other tie that I know of. It is not always best as far as cleanliness is concerned, but we have not much trouble on that score.

Let me reiterate the importance of knowing what our cows do. I can name a number of farmers in Ontario who have done this, and they tell me there is nothing that has improved their herds so much. To the man who is raising pure-bred cattle, it is unfavourable, because he is unable to say a certain cow has produced as much milk, therefore her calf is worth so many dollars. If the officials of the different breed Associations would compel their members to keep a record of their cows, and then put their records alongside of the pedigrees, it would be one of the greatest benefits the dairy industry of Canada could receive. Pure bred animals of this country are not living up to the possibilities of dairy cows, and we must begin from the pure-bred sire.

In my capacity as Agriculturist at the Experimental Farm I have received a number of requests from farmers, particularly in Eastern Ontario, asking us as to where they could secure good pure bred sires, and I am at a loss to tell them. I know all the breeders, and I know their herds, and I know that they have young animals for sale; but how could I recommend them when I do not know what their cows are doing? In fact I do know, and that is the trouble. I know lots of them are not doing anything like what they should do. A man in my immediate neighborhood had something like 30 Ayrshire cows for sale two years ago, and he was only able to point out three or four cows that passed the 7,000 pound point. In my opinion no dairy calf should ever be sold for breeding purposes from a cow that does not pass the 7,000 pound mark. That man had been selling hundreds of bulls in the last 10 or 15 years to farmers who were undertaking to improve heir dairy herds in Eastern Ontario, and that man had done incalculable damage to the development of our dairy industries in Canada. If we are going to improve our dairy herds in this country we must see to it that the pure-bred sires are from cows that have better milking records.

A MEMBER: Is it necessary to send returns to the Department?

Mr. GRISDALE: No; it it not necessary, but we shall be very glad to have you do it. We send forms to show the total for the month, and to show the per cent. of fat, and forms that you can make up and show the returns for the whole year.

A MEMBER: How many pounds of roots do you feed?

Mr. GRISDALE: Usually we mix the corn ensilage and the roots, we find that the ration of about 50 pounds of mixed ensilage and roots per day is the best, in fact it is about all the average cow would eat. If we feed roots alone as we have fed mangels, we sometimes go as high as 65 and even 70 pounds; but I am not sure that so large a proportion of roots is profitable. In fact, the cost of our rations, where such a large proportion of roots were fed, was greater than where a smaller amount of roots were fed. We put the roots at $2 a ton, except sugar beets, which we put at $3, ensilage at $2 a ton, clover at $7 a ton, and the meal at one cent per pound.

A MEMBER: What would be your preference, ensilage or roots, if you had to take one as feed.

Mr. GRISDALE: I think I would prefer the roots as feed. They are apparently more wholesome, there is less bother in connection with feeding of them, and they certainly are more palatable. But I have nothing against corn, and if I were a farmer, as I am, both of the Experimental Farm and on my own hook, I would grow corn instead of roots, for the simple reason that the labor in connection with the raising of the corn and the housing and feeding is considerably less than that of roots. We can grow a ton of corn, put it in the silo, and have it ready for feed for just about the same cost as we can grow a ton of roots which cost us $1.50 to grow and put in our root-house ready for the winter; and we can put a ton of corn in our silo ready to feed it for the same amount. Before we can feed the roots we have to pay the cost of pulping, and therefore corn is cheaper, and we do not have to go down to the fields four or five days and hoe away to get out the weeds, and you do most of the work of the corn with a horse.

A MEMBER: Was that cow census taken during the year,—certain months I mean—the one taken at Cowansville?

Mr. GRISDALE: That extended from the beginning of June, and was for six months only. All the herds did not keep up the census during the whole six months. I think between 1,100 and 1,200 were on three or four months, and in the last month the number was only between 300 and 400.

A MEMBER: Would not that be a little misleading? A lot of these dairies are established for making butter.

Mr. GRISDALE: I hardly think it was. During June the average cow gave a little over 600 pounds; during July about 500 pounds; in August between 400 and 500 pounds, in September less than 400 pounds; in October less than 300 pounds; and in November a little over 200 pounds. If you will add this together you will see that the average cow gave during that time what amounted to only about 2,500 pounds or a little less. Many of the cows calved in June, and our conditions here are different, as they come in much earlier. Of course I am only speaking from the figures. You must admit that in a dairying district where, in six months, the average is 2,500 lbs. or less per cow, that it is a very bad showing, especially when you remember that milk sold for less than 70c all summer. We want to change that, and we can if we go about it in the right way. A cow giving 2,500 pounds of milk can be made to give 3,500 pounds by good feeding. Even a little bit of grain fed in the winter has been found profitable.

A MEMBER: Do you recommend warm drinking water for the cow in the winter time?

Mr. GRISDALE: I have no experience along that line. I think no doubt it would do good, and I have no doubt the cow would like it better than cold water, because the cow will drink warm water greedily, but of course, it would be a very expensive thing in this country where the temperature sometimes falls to 30 below zero.

A MEMBER: I have found the opposite, and that a cow does not drink as much of the warm water. Of course we have a bank barn, and the cows are kept comparatively warm.

Mr. GRISDALE: We have never given our cows warm water, though where I have given a cow a pail of warm water, they have always drunk it down readily. But I never undertook to water a herd with warm water, and I really believe that the expense of warming the water up and keeping it continuously warm, as would have to be done, would more than counterbalance the returns you might receive.

A MEMBER: Would you advise feeding in the summer time where we have good pasture?

Mr. GRISDALE: Yes, to a limited extent.

A MEMBER: What would you feed?

Mr. GRISDALE: Supposing the pasture is plentiful, I would give them a little bit of chopped oats and barley rather than peas or bran—not much, but a little bit. If the pasture is very plentiful the cows will usually get all the green feed then can stand. In fact, they are unable to eat enough to do themselves justice, since the food is so succulent, and a little bit of meal not only encourages them in the good work, but helps them out. This is particularly the case with young cows. I have noticed that young cows suffer from the lack of sufficient food the first year, and that they do not develop as they should. In our own case we feed every cow, that is worth feeding, a small amount of meal—from one to two pounds, never more than two pounds a day, and we have found that it is really profitable thing to do. It brings the cows to the stable more easily, there is no difficulty in getting them in, and it keeps them quiet while you milk. There is no fidgeting to get out.

A MEMBER: I have noticed sometimes when they get out on the pasture in the spring they refuse to eat the meal.

Mr. GRISDALE: What kind of meal?

A MEMBER: Peas, oats, and barley, mixed.

Mr. GRISDALE: I have seen them refuse to eat certain kinds of meal. For instance, I tried to find out, if I could, last summer, what would be the best suitable food for cows in grass, and that is the reason I stated oats and barley ground. We could not get them to eat bran, and we could not get them to eat oat dust, and a number of those other by-products; but in every case where we tried it they ate oats and barley, and a similar mixture of bran; but where it was poor bran they did not seem to care for it very much.

A MEMBER: What do you feed when the grass is short and dry?

Mr. GRISDALE: We give them succulent food. We prefer feeding them a lot of peas and oats, and vetches and oats.

A MEMBER: Have you tried ensilage?

Mr. GRISDALE: If you have ensilage, cows will eat it just as readily as anything else; but if you are feeding ensilage, you will find it necessary to feed a little more meal.

A MEMBER: Don't you think that with good grass there is everything in that grass that the cow wants without any additional food?

Mr. GRISDALE: I quite agree with you that there is everything in it, but still I think it would be found profitable to give them meal, particularly in the case of young cows. They are scarcely able to eat enough. Did you ever notice that for a few days after a rain, when the grass was particularly rank, that the cows, instead of going up in milk, went down? Why was that? Not because there was not enough grass, but because they could not eat enough. Have you ever considered that common grass when it is in the very prime of its growth, and before it is matured, contains something over 90 per cent. of water. You can see the great task ahead of her to get enough food in her to keep her going. A good dairy cow requires about 25 lbs. of dry matter to keep her healthy, and to give her everything, and if that grass is 90 per cent. of water that means 10 per cent. of dry matter, and she is to eat 250 lbs. of that grass to get it. When the grass is dryer, after the first rush of growth, then she can get more dry matter from it, and the meal is not so essential as at other times. If we could change a cow, and give her no meal when the grass was just in the right condition, and fairly dry, then when it comes wet time give her meal, it would be all right; but you cannot

do that. If you are giving the cow some meal to-day, and a week from now conditions arise that do not call for meal, and you take it away then, you are going to suffer at the pail, because the cow resents any interference with her ration.

A MEMBER: What kind of grass do you use for pasture?

Mr. GRISDALE: Timothy, red clover and alfalfa, and a little bit of alsike. For the pasture land we follow the three year rotation. We put corn and roots on the area intended for pasture, and the next year we put in corn and seed it down with that mixture, red clover, about 6 lbs. alsike, about 2 lbs., timothy about 8 lbs., and alfalfa about 8 lbs. per acre. When it is seeded down the meadow is not allowed to be touched, except to put a few calves on in the fall, and you will be astonished at the amount of pasture there is in a field seeded down in that way. We pastured 50 cows two months on that 14 acres, and 25 cows for the rest of the season. The man who thinks he can take off two or three crops of hay, and then make a first class pasture of the field, is going to fall far short of his expectations. It will pay every time to give the first year of a new meadow to pasture. Do not let him go on it when it is wet if you intend it for pasture the next year.

A MEMBER: What grain do you use when you seed down?

Mr. GRISDALE: Oats. We have never had any difficulty in growing alfalfa, and we have considerable areas of it. We find it is a most invaluable mixture for pasture. You see it is rather an expensive seeding, but it pays every time.

A MEMBER: What sort of soil have you?

Mr. GRISDALE: We have about every class of soil you can imagine on our farm at Ottawa. The last year's pasture started off with a sandy loam, in 100 yards from that was a clay loam, and that kept on 200 yards more, and then it into a sandy loam, and then black muck, and then hard pan, and then pure sand, and then clay, and the field for pasture next year is quite as diversified. The great thing is to get a lot of humus in the soil and have it well drained. Our rainfall in the Ottawa Valley is greater than it is here, and we very seldom miss a catch of clover seed. Any land that is well drained and where the water level is at least two feet below the surface will suit alfalfa.

A MEMBER: Do you allow the fifty cows to roam over the entire pasture?

Mr. GRISDALE: Yes, but I don't think it is best. I would rather see them divided into two fields, but it was not convenient for us to do it. For two months they got nothing else except a pound or two of meal. The young stock got nothing else at all, but the milk cows got meal each day.

LINKS IN THE DAIRY CHAIN.

By C. C. JAMES, DEPUTY MINISTER OF AGRICULTURE, TORONTO.

The work of the Wetern Dairymen's Association and the work of our Department are very closely identified. It is largely through the various Associations of the Province of Ontario that we carry out our work, and the agricultural operations in Ontario result to a large extent through the hearty co-operation of the Deparment with these various Associations and persons who are appointed and work in harmony with both; but if we could only get the Department and all the officers of these Associations and all of the farmers of the Province of Ontario working thoroughly in harmony, with-

out any break or without any distinction whatever, I venture to say the forward movement in connection with Agriculture in Ontario would be of enormous proportions. It is very difficult to reach all the farmers of the Province, but we are very pleased that the co-operation between the Associations and the Departments has had no break, and is of so promising a nature.

Two or three references have been made this afternoon to the effect that 1904 was an off-year in Toronto dairying. Was it such a poor year after all? In the latter part of the summer of 1903 we were reading in the papers the reports about the failure of the wheat crop in Manitoba, and I remember picking up a paper one morning, and reading an interview with a gentleman who had just returned to Toronto, and he told a most woeful tale. All these reports about good crops that had been sent out were sent out by interested parties. He had been over the Province, and there was a failure of the wheat crop staring the people in the face, and towards the end of the interview he said the wheat crop will not average more than 15 bushels per acre. A little later in the day I had a telephone call, and a gentleman, largely interested in Manitoba, called me up, and asked me if I had seen that interview. I said I had, and he said "What do you think about it?" and I said it looked blue till we came to the tail end of it, where the man said he didn't think the crop would average more than 15 bus. per acre. I said, "That is all right, if that is the worst he can tell about it; for that is about the average for the last ten or fifteen years, and quite a number of bushels above the average of the United States. In the two previous years they had bumper crops, 20 or 25 bushels per acre, and they had got in the way of looking for these enormous crops, and when it came down to the natural level, people were inclined to say we have a failure. Now, that may be the same thing with the dairying. In 1902 you had a good year—I suppose the best in 20 years. But that was not good enough, so in 1903 you had a still better year,—big yields, and big prices, and the dairy farmers of the Province were going around, feeling proud and happy, and they were the best looking lot of men we ever saw in a convention. They began to think Providence had picked out Ontario as peculiarly fitted for fine dairying work. Now we have come back to something like former conditions, and the people are all saying we have had an off year; but I am not so sure that we can fairly state that last year was an off-year. It was not as good as the two previous years; but take the average run of dairying for the last 8 or 10 years, and you will find we have come out pretty much on the average.

Supposing we should have an off-year, are we to become discouraged? Would the wheat growers of Manitoba become discouraged if they had an off year in five or six. Not at all. Ontario is not depending for results on the dairy business for one year. It has taken us 40 years to build up the cheese business in this Province, and I don't think our dairymen are going to become discouraged if once in a while they have an off year. That is the time we should look more closely into the industry, and see if there is some way whereby we can get over our difficulty, and make sure that we can recoup ourselves for anything that we have lost during the recent year. Good years come and bad years come, but I think the dairying of the Province of Ontario seems to be gradually moving up. There may be some in this audience who can go back to the beginning of things, and some can go back 25 or 30 years, and if you can look back you can see the wonderful improvement. We have to continue telling the same old story, because if you look over this audience now you will see that there are very few young men here. Most of you are middle aged or old men, and we have got to wait until these boys grow up, and come to your age before they come into the Convention, and

then we have to tell them the same old story of the gospel of good dairying. Now what is dairying? Supposing we were to put that as a question on an examination, we would get varied answers. Supposing you step into a restaurant or a shop in London, England, and examine a Canadian cheese that is there right next to the consumer, and supposing you trace that cheese back. It was transported across the Atlantic after being sent to Montreal, after being in some western point in storage. Before that it stood for a while in the factory. It was brought to the factory in the milk can. It was put into the milk can by the farmer or the farmer's wife or daughter, from the milk pail into which it was milked from the cow. Where did the cow get it? From the food that you put before it in the morning or in the afternoon. And now we have got that cheese which was sitting upon the counter in the old country back into the timothy, hay or clover, the grain, or the grass. We have brought it right back to the soil on the farm. Here is one man who is concerned in one part of it, who will tell you that dairying consists in the production of milk; another will say it consists in the making of cheese; and the man who buys it, and stores it in his curing room, and transports it, and sends it to the Old Country, thinks that is all there is in dairying. It takes all these processes to make up the whole range of dairying. Now, you will see that dairying is a long chain made up of a number of links, and the trouble with our dairymen in Ontario has been that from time to time we have considered some of the links and neglected others. This Convention will concern itself sometimes to a large extent with just one part of that process or one link, and will neglect others: and the next year you will take up some other link in the chain. But we should give proper time and attention to all these links, and see that there is no break in the chain. If there is a break anywhere the whole dairy industry of Ontario must necessarily suffer. The point I want to get before you is, that the man who is going to be the first-class dairyman cannot afford to neglect anyone of these links that form that important chain. We had a talk this afternoon about one of the important links in this chain, in which Mr. Grisdale, of the Dominion Department of Agriculture has presented before you some of their important facts. The man who is going to make his success sure in this busines will see that he cannot expect to make a success of his work if he simply pays attention to one link, and neglects other links in the chain. We have been told that a large number of the cows of this Province are not paying for themselves. The cow is a first-class machine or should be. A farmer buys a reaper and a mower and rakes to help improve putting the product of his field into a marketable shape, and the cow is a machine of a higher quality, of finer texture than all these, and why should he keep a poor one. I think we ought to start right there, and make a careful and systematic study of the animals and select the very best, and weed out the poor ones in all our dairying work, and we ought to see that the foundation is properly laid, and that the cows are carefully handled, and the milk properly taken care of. The farmers of the North American Continent are gradually having the fact forced upon them that there is grass and grass, that there is hay and hay, corn and corn, wheat and wheat, and that the difference between the best and the poorest is very wide indeed. If you have been following the experimental work carried on at Guelph and Ottawa, and at some of the American Experimental Stations, you will perhaps have been struck with the fact that at this Experimental Station they seem to get results of the most extraordinary kind; and perhaps you are inclined to doubt the accuracy of these results. But if you will look into it more carefully and thoroughly you will find that there is a very wide dif-

ference in the different kinds of grains in the different kinds of grass, and in the different kinds of hay. You have had the fact pointed out to you on this afternoon that you can take four cows and one of them will produce four times as much as another, three times a much as another one, and another twice as much. Now, the point I want to make is, that while we have these great variations in the kinds of animals upon our farm, there are still wider variations in the production of the grains and grass that we grow upon our farm; and if it is important for us to see that we have in our herds only the very best cows, I say it is of still greater importance that we go back a step further, and see that we grow upon the fields on our farms, not smply corn, but the best corn; not simply oats but the best oats, not simply barley but the best barley. And I think unless we begin on his foundation we cannot expect to make the greatest success. What a difference it would make to the dairying of this Province, if we could go over the farms and plant only the best grain, only the best quality of timothy, only the best kinds of grass. The value of the products of this country would be increased 10 per cent., yes, and one hundred per cent. and over. The progressive and up-to-date dairyman in this country should read and study carefully the reports and bulletins that are issued by our Institutes at Guelph and Ottawa, and read at least one of the best dairy papers; and whenever he sees notice of an experiment he should send and get it. If this was carried out there would soon be a great uplift in the dairying in this country. The Dominion Department of Agriculture is trying to keep the Dairymen posted on the transportation question, trying to help improve it on that line, also helping him to select and improve the animals; the Department at Guelph is trying to show the farmers what are the best kinds of grain and grass to grow, and they are providing him with samples of seed for that purpose; our Farmer's Institutes are trying to instruct the farmers as to how to best handle the milk, and to care for it, and we are sending out instructors to assist the makers in the cheese factories and the creameries. Last year we had no less than 32 instructors in the Province of Ontario, going from factory to factory, and visiting the farms and trying to help them in various ways, and trying to build up the various links in this important chain which we call dairying in Ontario.

One man perhaps, may be more intimately concerned with one link and another with another; but we must all remember that dairying consists of a long chain, every link of which is important, and must be looked after until the finished product is placed on the counter in the Old Country.

We have various movements at work helping along this work, and our dairymen should get in touch with all of them, and neglect none.

Now, dairying is a very complicated business. You can take any line of manufacture that you would like to menion, and put it along side of dairying, and I venture to say that you will not find in any town of the Province of Ontario, any line of manufacture which in complication or in delicacy of work is to be for one moment compared with that of dairying. If that is the case, what does it all mean? It means that in connection with dairying we require just as high a class of business ability as we do in connection with town and city work. We have a business that is far more complicated, and far more interesting, and the men who are concerned in it must be of a high class; and if they are going to succeed they must put as much intelligence, and as much brains into it as the men in our towns and cities put into their work; and only when they do that can expect to achieve success. Now, when we have so many possibilities of success, and so many possibilities of failure, such as Mr. Grisdale mentioned, we can still make a

success of it by using the best of machinery; and we can improve these poor cows by feeding in a scientific manner, and by raising a better class of grain and fodder. We would make a wonderful success of the business if we would start right from the bottom and improve from that up.

I was reading in a New York paper the other day, a paper written by an expert who started off with the remark that during the last year the Province of Manitoba had a good yield of wheat, and he gave the number of millions of bushels, and he said that they got a good price for it, and that that accounted for the prosperity of Canada to-day. I wonder if that man knew anything about what the farmers of Ontario were doing. It sometimes makes me smile, when I see persons writing in the paper and attributing the prosperity of Canada altogether to the fact that they have been growing millions of bushels of wheat in Manitoba. They forget altogether that in the Province of Ontario we have a great army of dairymen and a great army of farmers, who have been working and thinking and improving during the last few years, and have been increasing the output of their fields, improving the output of their cows, improving the output of their stables, and of their pens, to such an extent that the income of the farmers of the Province of Ontario has reached a point where we may say they are more prosperous than they ever were before. We have reached a point where they can have an off year without being hurt by it.

A good deal has been done in the past, but the possibilities of the future far outweigh the past, and if we can only get hold of the dairymen of this country and give them the gospel this Association is trying to teach, and and get them to work it out in their practice, and get the young men who are coming up on the farms in the Province to grow into dairymen, the upward movement would outstrip that of any other country of the world.

While people are willing to admit that dairying in Ontario is making progress, some people criticise it because we are not making so great progress as the people in Denmark. Every once in a while you will see comparisons between dairying in Ontario and in Denmark. Perhaps we are not doing as well as the Danes, but you should remember that the Danes are practically dairymen and nothing else. It is butter and bacon, and some cheese; I doubt if there is anything else produced in Denmark that is worth considering. With us, however, having the same population of about 2,500,000, and about the same number of persons engaged in agriculture, we are not simply a great dairying country, but we are also great producers of beef and grain, and it is hardly fair to make a comparison to our discredit. And so we are not doing as much as they are, because the whole effort of Denmark has been towards the production of butter and bacon.

I would like to leave that one thought with you, that dairying begins not in the factory, not with the cow, but with the production of the food upon the farm; and if we do for ourselves that which is our duty, and among first-class dairymen, we have got to see to it that we know not simply how to make cheese, and to produce milk, but that we know how to produce the material to turn into milk. The dairymen of Ontario are engaged in a very complicated business, one that demands the very highest kind of intelligence and shrewdness, and it is our duty to ourselves to see that we neglect none of these principles—none of these links in this long complicated chain, but that we start at the foundation and fit ourselves from the ground up.

DAIRY STABLES.

By Prof. H. H. Dean, O. A. C., Guelph.

I have been asking myself an important question: "Why have we not more ladies at the convention this afternoon?" Most of the men about Stratford seem satisfied with less than one lady, and they have not brought them out. Another question I have asked myself is: "Why have we not more farmers here this afternoon?" I do not know all the people here, but I think two-thirds of the people here are cheesemakers or butter makers. Why have we not more farmers here? This is supposed to be the farmers' association—the farmers' day. I have tried to answer the question, and I have come to this conclusion: I believe it is one of the weaknesses of the speakers—and I plead guilty in that respect— that they are inclined to scold and find too much fault with the farmers. They are inclined to tell him he does not do as well as he might do—that he sends dirty milk to the factory. The farmer does not like to be found fault with, and in connection with our work at the Dairy School where we have difficulty in getting milk we have found it to be a good policy to try and coax the patrons instead of scolding them. Last summer Mr. Stratton said to me that some of the patrons were not washing the cans on the outside while they were well washed on the inside. In the monthly letter which we send to our patrons I drew their attention to the fact in this way: "We regret to say that the outside of the can is not so clean and bright as the inside. Will you kindly give this your immediate attention."

The milk can when delivered at the weigh stand has some effect on the man who is receiving the milk, and if it looks nice and clean and bright he is more apt to receive the milk than if the can has a dirty, rusty appearance.

The second reason to my mind why we find so few farmers is, as was stated at Brockville when a farmer in the audience got up and said to the Superintendent of the Farmers' Institutes: "Why don't you send us better speakers to the Farmers' Institute meetings? We know more than the average speaker that you send to us." Is it a fact that the farmers of this country are becoming so educated that speakers sent to Farmers' Institutes and Dairy Conventions can no more tell them something that they do not know? Have we reached that condition in agriculture? If so I think we ought to congratulate ourselves, and the men who are engaged to talk at these conventions need to get a move on and see if they are keeping in advance of the farmers—if they are able to tell them any new things or illustrate old truths in new ways. Are we able as teachers in this country to tell the farmers anything new? Can we help them in any way or have we reached such a state that there is no room for improvement?

Mr. Gould is down for something in connection with the dairy stables, and the time is so short that I can only touch upon three or four truths to be observed in the construction and handling of such stables. In the first place, we must always bear in mind that the stable is a house in which the cow spends at least one-half of her time. They are out on pasture only five months, from the 1st of June till the end of October, and we must make the house so comfortable that the cows will have health and enjoy themselves while there. The whole question of getting suitable milk production from cows can be summed up in that one word—make them *comfortable*. The cow is very much like a man. A man gets very uneasy when he feels an emptiness in the middle part of his body; and if you fill up that space he feels good. You know the women have found out that the best way to get

along with their husbands is to feed them well. Give them plenty to eat, and they generally remain in good humour. That same principle applies to the handling of the dairy cow; give them plenty to eat.

Next we need to be able to control the temperature in the stable. The cheapest thing that can be used for controlling the temperature in the dairy stable, is a still air space. Nothing is such a good non-conductor of heat. Nothing will prevent heat from coming out of the stable like a still air space, and that can be got by using hollow bricks, or cement or building of wood, and having a two or four inch air space in the wall, and better still filling the space with shavings or sawdust or mineral wool.

The second principle to be observed is that the stable shall have plenty of light in it. Dark stables are bad places in which to keep dairy cows. Light is one of the best disinfectants we can get. We go over the inside—our walls and windows—with a white-wash, putting it on with a common spray pump. We do this every spring after our cows are out in the fields, and we go over the walls with a solution of bi-chloride of mercury, 1 lb. to a 1,000 lbs. of water. We put that on with an ordinary spray pump, such as you use when spraying fruit trees. We make the white-wash out of ordinary lime and skim-milk, into which we put about five or six teaspoonfuls of crude carbolic acid for each gallon of whitewash. We go over the walls and ceilings, and this mixture gives us a light stable, and at the same time by putting it on the windows it keeps out the heat, and in the fall of the year we take that whitewash off the windows and let the sunlight in. That is the second principle to be observed—that our stables shall have plenty of light.

The next is that the floors shall be as sanitary as possible, and that nothing shall pass into the floor or through the floor; and everything considered, I am convinced that cement is the best material to use in a stable for our cows. Cement is not an ideal floor, as it is slippery and cold but, taken all together, it is the best material to use in the laying of floors in the stables of this country. Before you lay a cement floor you should get the proper grades of the ground, we keep a slope of one-half inch from the center passage to the drop behind the cows. After you have your grades properly made then put on three or four inches of gravel, wet it and pound it well so that it will be compact and solid, then put on three or four inches of grouting, made of one part cement to five parts of clean sharp sand, and trowel it off fairly smooth; then about 1 inch of cement mixed in the proportion of one of cement to two of sand, and smooth that off with the trowel.

There are two ways of finishing the floor—either smooth or rough. I prefer the smooth finish, because it can be more easily cleaned, and that is the most important point to bear in mind; for in building a stable we must make it so that it can be properly cleaned, and if you have the rough finish it is not so easily cleaned. If we have the whole floor made in that way we must bear in mind that this floor has the objection of being slippery, and in turning the cows out of the stable we must put sawdust or shavings or cut straw on the passage. The cows will become accustomed to the floor in a short time, and there will be very little danger of slipping. Then we must remember that it is a cold floor, and that takes the heat rapidly from the animal's body. We can prevent the cow from receiving a chill, and lessen the danger of inflammation, by using plenty of bedding so as to keep the cow's body away from the cement floor.

We have done away with the manger entirely in our stables, having come to the conclusion that the mangers are a nuisance. They are not necessary. The dirt accumulates in those mangers very rapidly, and it is prac-

tically impossible to keep them clean. Especially is that the case where you have to depend on hired help, and for this reason we have done away with the mangers in our stables entirely. The cows eat on the same level, and on the same floor, on which they stand. The passage between the two rows of cows is about four inches higher than the one on which the cows stand. That forms, to some extent, the back ground of the manger, and you can go along with a brush or broom, or with water and the hose, and clean the whole thing out in a very short time, and that is something you cannot do with the ordinary manger. There is one objection to it and that is, that the cows will steal from one another to a more or less extent; but I do not think there is anything in that, as it does not do cows any harm.

The next point to be observed is ventilation; we must have the stable properly ventilated, and we must bring fresh air into that stable without causing a draft; and to do this, we must take the foul air out from the lower as well as from the upper part of the stable. We must bring the fresh air in and take the foul air out without causing a draft. The most poisonous gases are on the lower parts of the stable, down where the cow has her nose when she is lying down.

Next, we must provide sufficient supply of water for our cows, and in this connection I must say that it will pay to put water into the stable. We put in a system five or six years ago which has proved entirely satisfactory. Our cows stand in two rows, facing each other, and in front of each row is a galvanized iron trough. We have a water pipe which delivers the water into that trough when the cows want it. I do not think it is advisable to keep water in front of the cows all the time. The cow does not need water all the time, and the water will absorb the impurities from the stable if left standing there for any length of time. The system for watering our cows that we put into the stable cost us $18 for 30 cows and that is only 60c per cow, and I think any farmer could well afford to pay 60c per cow when it is going to save him all the trouble of watering the cows. Of course, if you have not already a tank or water supply, you will have to furnish that in addition to the trough. These are a few of the principles which must be observed in constructing a dairy stable, and if these principles are observed, I see no reason at all why we should not be able to produce milk as cheaply in the winter time as we do in the summer time.

We have heard a great deal about the price received for cheese during the past year. I believe the farmers made as much money out of their cows this last year as they did two or three years ago, because milk was produced more cheaply in 1904 than ever before. The highest cost for feed for any cow in our herd last winter was $32. I would ask you to please bear in mind that the profit from the dairy business is not in getting a high price, but in producing milk as cheaply as possible. The profit lies in the difference between the cost of production and the price we receive for our cows; and for that reason when prices are low we must study how to produce cheaper milk, and the only way we can produce cheaper milk is by getting better cows, feeding them in a better way, and looking after them in the best way possible.

I am very sorry that Mr. Grisdale has gone, as I would have liked to have said just one thing while he was here. I think these men who are teaching that the dairy form is so necessary are making a serious mistake. It belongs to the class of superstition that ought to be done away with. We do not hear any more about killing pigs in the right time of the moon, or of sowing peas when the moon is just right; and this matter of dairy form is one of the superstitions that belong to the past, and we should do away with it,

and emphasize the importance of performance; and I would like to point out that the Minister of Agriculture for the Dominion of Canada thinks this question of performance of so much importance that he is going to send out several men to find out not whether cows have a dairy form or not, but how many pounds of milk the cows give and what their feed costs. Now, if it was a matter of form, why not get the farmers to divide the cows according to the form, and send in a report, and kill off the cows that do not come up to the dairy form, and keep those that have a dairy form? That would not be as much trouble as weighing the milk and feed. I think we should pay more attention to the performance of the cow, and that could be found out only by weighing the milk and testing it, and keeping track of the feed.

ADDRESS ON DAIRYING.

By A. F. MacLaren, M. P., Stratford.

While I was actively engaged on my recent election campaign I visited a great many of the farmers in this riding, and I found a number of the finest dairy farms and the finest barns and stables that I have even seen in my life. They were kept in the very best condition and shape, but there is one thing to which I want to draw to the attention of the people of this country, and that is that they can improve their stables and barns. In many cases I found that the cows were housed up in a badly lighted and poorly ventilated stable, and I think it is one of those matters that we should pay strict attention to, and try and improve in our dairy barns. It is utterly impossible to make the best cheese and butter, and to produce as large a quantity of milk, unless you have the stables and the barns and the place to store the milk and care for it. We must have everything in connection with the cow stable in the very best condition. One bad lot of milk will spoil the butter and cheese of the whole factory. Everyone should keep the pails and milk tins and all the utensils used in connection with the production of milk sweet and clean. I do not know how many farmers are here to-night, but there are a lot of citizens, and they can do a great deal towards helping the farmers in this matter.

Another thing I want to speak about is the prizes that have been taken by the cheese makers and farmers of the County of Perth, and I must say that I am proud of the position I occupy as Member of Parliament for the County of Perth, because I represent the banner dairy county of the Dominion. We have taken more prizes and medals and cups, such as you see before you to-night, than any other county in the Dominion. Perth County has captured the large trophy you see on the platform, and we also took one at the Toronto Exposition. It is a man from the Township of North Easthope who has won this handsome trophy. We have been advancing to the front ever since the Philadelphia Exposition in 1886, when we took the first prize for cheese in that Exposition. A man living in the County of Perth took that prize; we also took the best prize at the Chicago Exposition, and we did the same thing at the Pan-American and at Toronto and Ottawa and London, and at all the large fairs all over Canada. We have taken more prizes in Perth County for butter and cheese than any other county in this whole Dominion (great applause), and I am very glad to stand here to-night as a representative of the County of Perth.

I want to say a few words to you to-night on the same question that I spoke about at Woodstock two years ago. On that occasion I said that we were paying very high rates of freight on everything we shipped north of this town. We are paying very high rates of freight—from 10 to 13 cents a hundredweight more than places sixty miles south of us—and I want to say to this convention and to the board of directors that it is high time we asked the Railway Commission to give us equal rights, and that they give us the same rates of freight they are giving to places sixty miles to the south of us, where they have the competition of the C. P. R., Grand Trunk, and the Canada Southern Railway. Why should we not get the same rates of freight as they get sixty miles to the south? I shipped a car of cheese from Atwood to Liverpool, and on the same day I shipped a car of cheese where I could have hauled it to any of four railways and what do you suppose was the difference in freight rates? I had to pay 13c more a hundredweight from Atwood than I paid sixty miles farther south, and I think we should insist upon the railway commission giving us the same rates as they give to these other shippers to the south. I do not say they should go to work and give us rates 13c less, but they should divide it up and give us a fair rate, and I want this Association to pass a resolution asking the Government to insist upon the railway commission giving us proper rates in this part of the country.

I hope during the next two or three days I will have an opportunity of stating to you what my ideas are with regard to the advancement of the different branches of this industry.

We have several hundred men every week selling cheese in the western part of Canada from the different cheese boards. I have thought for many years that it would be a good idea to ship our butter and cheese every two weeks to a large warehouse in Toronto at the head of the lake, and to have cold storage warehouses there, and have all the butter and cheese from Western Ontario shipped to that cold storage, and then have three or four men to sell the butter and cheese instead of having two or three hundred men to do that work. All the buyers can assemble there once a week and buy all the cheese they want. By that means you would have the competition of the waterways, of the Grand Trunk, and the C. P. R., and much money could be saved. I have also thought that the time will come when we will have electric railways running down to Toronto, and we will be able to ship the cheese by these electric railways at a very low rate, and that is one of the things that I would like the convention to think over and talk over at this meeting.

ADDRESS OF WELCOME.

By W. J. Ferguson, Mayor, Stratford.

After a most cordially expressed welcome, and some references to certain phases of local advancement, the Mayor proceeded to say:

The dairy industries of this country have become a marked feature. Canada for some time has enjoyed a reign of peace and revelry, not the revelry of arms or of destructive warfare, but of skill in the development of our industries, and foremost among those are agriculture. (Applause). The Governments of the Dominion and of the Provinces have recognized this, and they have established Departments of Agriculture and they have their Ministers of Agriculture and their staff under them, who are giving their very

best thought to their work, and are doing their best to develop our country, in seeking to wrest from nature those secrets which when coined into usefulness and wealth make our country one of the foremost among the nations of the world. I feel, indeed, that the Government has done well, and that we are much indebted to the work of the Department for our success in agriculture. To-day the nations of the world are discovering that we are a mighty nation, and that we have a territory both in quantity and quality second to none, and that we occupy a proud position among the young nations of this world.

Our Ontario Government has been paying due respect to the agricultural interests of our country. I noticed that during the past year they have invested some $450,000 in the interest of agriculture in sundry grants to various institutions, among them some 850 Farmers' Institutes, and I understand that these Institutes are held in different parts of the country and are addressed by expert men, and I think that was a very happy idea when they organized some 900 Women's Institutes. I am sure the home-makers have a great deal to do with the success of our country.

We know what is being done in the Ontario Agricultural College. Doubtless you have all visited that institution. An agricultural college is also being established by private individuals in the vicinity of Montreal. Any government or any person, who will expend money in an effort to develop and increase the wealth of the nation should receive the heartfelt thanks of the entire country. The question of education is being taken up in a very forcible manner, and along all these lines the Government has shown a forwardness and interest in agriculture that undoubtedly will be productive of the very best results.

We all rejoice to know of the part you have taken in the dairy industry. We have admired your leaders, who have from time to time addressed the meetings—men who come to give you the very best thought and the latest scientific knowledge as to the production of butter and cheese. I am sure this country rightly esteems the name of Ballantyne, MacLaren, Derbyshire, Eagle, and others; and we hope these men may live to see the product of their energy and of their thought developed steadily, and that their places will be taken by young men who will take as great an interest in the business. We are glad to have in our own midst a Steinhoff, who is developing a great interest in the business and who takes a leading part in connection therewith.

We are sorry to notice that this year you have had a decline in your exports of some $6,000,000. That is a very large decrease, and I notice that Mr. Derbyshire draws your attention to the fact that when the price goes down they should not weaken in their interest, but that they should make up in quantity what they lose in price. I noticed that Holland received in the markets of Europe last year $8,500,000 more money for the same quantity of dairy products than any other country in the world, and I think that is a marvellous thing, and I am glad to know that Canada is her strongest competitor in point of quality. (Applause).

The farmers of Perth have splendid barns and outbuildings and comfortable homes, and our farmers are rapidly approaching the condition of comfort and dignity that is identified with the English land owners, and our farmers' sons will be glad to stay on the old homestead and carry to greater success the conditions established by their fathers.

The farmers live in the presence of nature, and nature never dresses herself meanly, and he who lives in the presence of nature has great advantages and it develops the type of manhood highly creditable to us.

Mr. Douglas, President of the Stratford Board of Trade, also extended a hearty welcome to the members of the Association. He assured them that the Board of Trade was deeply interested in dairying, as that industry was closely connected with the success of the city.

The Chairman replied to the address of welcome as follows: I am sure it affords me very great pleasure, indeed, to have an opportunity of conveying to you how very much the dairymen of Western Ontario appreciate the kind words that you have expressed to us to-night. We had the honor five years ago to receive an invitation from the city of Stratford to hold our convention here, and as has been intimated, we had the honor of holding the first public meeting in this magnificent city hall. We have noticed with pleasure, what has been said with regard to Stratford, and the progress your city is making. I think I speak the sentiment of the dairymen of Western Ontario when I say that it is most pleasant for us to receive from you the word of welcome that you have given us, because of the fact that this city of Stratford is the home of him whom we are proud to call the father of co-operative dairying. I refer to the Hon. Thomas Ballantyne. (Applause). He is not only recognized by the dairymen of Western Ontario, but he is recognized by the dairymen all over Canada, and even across the water the name of Ballantyne is known to the dairymen. Then in this city you also have Mr. A. F. MacLaren, your able representative in the Dominion House of Parliament for this constituency. So that when we remember that this Classic City of Stratford is the home of these pioneers in the dairy industry, it is just like coming home when we come to Stratford. I can assure the Mayor, and the President of the Board of Trade, that the dairymen of Western Ontario appreciate very highly the kind welcome that you have given to us this evening. (Applause).

I am very much pleased to-night that we have with us two of our American cousins from across the line, who are to address us. I do not know how far I might be able to go in assuring these gentlemen of the sentiment of this audience, in regard to reciprocity between Canada and the United States, but there is one thing that I can assure them of, and that is the complete sentiment and the feeling of reciprocity existing between the dairymen of the United States and Canada. (Applause). We appreciate very much the privilege of having these men come over and visit us and address us from year to year. The two gentlemen who are to address you this evening are not strangers to a Canadian dairying audience. They have both been here before, and they occupy a warm place in the hearts of the dairymen of Ontario.

CHEESE AND BUTTER MAKING AS A PROFESSION.

By Prof. G. L. McKay, Agricultural College, Ames, Iowa.

I can assure you that it gives me great pleasure to be present at your annual gathering. When the members of your executive committee invited me, I found that I was billed for meetings elsewhere on this date, but being a loyal son of Ontario, I found a way out of the difficulty, so I am present with you this evening.

Of all the conventions that I have attended, I find no more progressive or up-to-date meetings held anywhere than here in Ontario. Your laws preventing the sale and manufacture of skim-milk cheese, oleomargarine, but-

terine, and process butter, are good ones. Looking at it from a hygienic standpoint, possibly there is no food consumed in the form of butter more injurious than process butter.

In discussing the dairy question there are two great problems that will always stand out as the chief factors in the dairy business, namely: milk production and the manufacture of the same. Lecture upon lecture has been delivered upon these subjects, and yet we find men blundering along with apparently no conception of the importance of the work they are performing. Go with me to any of the leading butter or cheese factories, and you will find there patrons who are possibly getting from $40 to $60 per cow. You will also find others under identically the same conditions who do not even get enough returns to pay for the food consumed by the cow, notwithstanding the amount of literature distributed on dairying annually.

We have in our country butter and cheesemakers, and especially the former, who manufacture goods that sell for one cent to one and one-half cent per pound above market quotations. We have others who make butter which sells that much below the market price, yet in many cases the one is working under equally as favorable conditions as the other. What I would like to impress upon all dairymen here is that success never comes by chance or luck in any line of business. Chauncey Depew, being asked by a young man to give the secret of success, replied: "My boy, there is no secret to it. It is just dig, dig, dig." Edison, being asked to give the definition of genius, answered: "Two per cent. is genius, and ninety-eight per cent. is hard work." On another occasion this great inventor was asked if he did not believe that genius was simply inspiration. He replied: "No, genius is perspiration." The editor of a western newspaper sent to all the successful men in his city, this question: "Why is it that not more of our young men succeed?" And an answer came in this laconic phrase: "Because too many of them are looking for white shirt jobs."

Thoroughness in everything is the keynote of success. As Mr. Bok, the distinguished editor of the Ladies' Home Journal, says: "A thorough workman never says, 'There, that will do,' but, 'There, that is it.'" And this is what every young man in business should learn: That absolutely nothing is good enough if it can be made better, and better is never good enough if it can be made best.

The dairy business of to-day opens up a large field for intelligent young men who are willing to work with their hands as well as with their heads. In fact, the man who successfully operates a cheese or butter factory must be a man of ability. He must be capable of dealing with the patrons in an intelligent, business manner, for if the patrons are not satisfied, the business is sure to be a failure. He has the high speed, complicated machinery under his management, so he must necessarily be somewhat of a machinist, and in connection with this, to be successful, he must be able to produce the greatest quantity of the best quality from the milk received. Such a position should have a man of a high order of intelligence.

Have you creamerymen ever stopped to think that $15 or $20 per month on a creameryman's wages practically amounts to nothing? An inferior maker may lose three times this amount for you in a single day. Little petty jealousies have been the means of destroying more creameries in our country than all other things combined. What is needed among farmers is more faith in mankind. I believe there are very few dishonest men in the creamery business. If one-fourth of the dishonesty that is published in the sensational daily newspapers were true, the business of the world would be seri-

ously affected. When we consider that only five per cent. of the world's business is done on a cash basis, we find that business men have faith in mankind.

When talking to you, I use the term creameries more frequently than I do cheese factories, as we have more creameries in operation in Iowa than we have cheese factories. In fact, we do not make enough cheese to supply the home trade, while we export about $20,000,000 worth of butter annually. We have, I think, about 50 cheese factories and 1,000 creameries. The result is that buttermaking is the chief occupation of the young men who attend our dairy school. It may be interesting to makers here to know about what wages we pay good buttermakers. They range from $50 to $100 per month, and in some cases as high as $125. Two of our former students, who are acting as managers, each in a large central plant, receive salaries of $2,500 per year. One of these men formerly made in what might be termed a one-horse factory. The floors were badly broken, and things in general were in a bad condition. Now, what did this young man do? Find fault with the factory and creamery owner? No; he went to work and accepted the conditions as he found them. With the aid of soap, hot water and a brush, he soon had things sweet and clean, and by using good judgment and tact, he induced his patrons to clean up their cans and send better milk. The result was that this young man came into our State contest and won the gold medal and about $200 in special premiums, with a score of 99½ per cent. From that on he had good positions offered him. He is the holder of five gold medals, two being won in national contests and three in state contests. In connection with this, as I said before, he is now drawing a salary of $2,500 per year. This young man has obtained that high position by close application and careful attention to all the little details connected with the creamery business. Now, what this young man accomplished is possible for others. I had one of your good Canadian cheesemakers attend our dairy school three or four years ago. To-day that man is receiving $1,500 per year in a large central plant.

In dealing with the butter business from the manufacturer's standpoint, there are two problems that will always come up. The first is quality, and the second quantity. In analysis of the average butter, we find about 85 per cent. fat, 1 per cent. casein, 2 to 2½ per cent. salt, and the remainder water. The maker who can control these different constituents to his own satisfaction, or to a right and just proportion, is a valuable man to his employer and to himself. This, in connection with clean skimming, is the factor that controls quantity.

A little over two years ago, I had the privilege of being sent by the U.S. Government to the European countries where dairying is carried on, to investigate their methods of manufacturing butter and cheese. I was somewhat amused when examining the various brands of cheese in the English market. When these dealers found out that I was seeking information about the manufacturing of different brands of cheese, they said: "Why do you not go to Canada and study their methods, as they make the best cheese of any country in the world?" Your buyers and dealers may tell you that your cheese do not give satisfaction in the English market. From my experience in looking up the cheese business in England, I found that the supremacy of the Canadian cheese was an accepted fact.

When examining butter in the London market, I found a wide variation in prices—a variation of as much as four or six cents per pound. The butter that was selling at the top of the market at that time was the somewhat famous French rolls and the Danish selected. I was particularly interested in

the general character of this butter. So much so that I had a little laboratory fitted up at the hotel and made a number of tests, and to my surprise the Danish butter and the French rolls ran two or three per cent. higher in water than some of the other brands. Here we found the Danes not only getting two or three cents more per pound for their product, but actually making two or three pounds more of butter to each 100 pounds of butter fat, and yet the Danish butter has a very dry, mealy appearance. I immediately got interested in this phase of the butter question.

When I went to Copenhagen and met the late Professor Siegleke, I asked him why the Danish buttermakers incorporated so much water in their butter. The old gentleman looked at me a moment and then said: "Butter is supposed to be plastic and intended to spread on bread, therefore it must contain some water." I found, in visiting the creameries of Denmark, that they practically all followed the one method of making. They skim a very thin cream, containing about 18 to 20 per cent. fat, which is immediately pasteurized by heating to a temperature of 190° to 194° F., and the same is quickly cooled down to a temperature of 50°, where it is held for about two hours. The cream is then raised to a temperature of 60° to 65°, when about 5 or 10 per cent. starter is added. Now, there is nothing peculiar about this part of the work. They do not develop a very high per cent. of acid, which accounts for their mild flavored butter.

The temperature of churning at most of the places visited was from 58 to 60 degrees. This high temperature has a tendency to make the butter gather a trifle soft. As soon as the butter was churned into very fine grains,—as fine as clover seed, a lot of ice-cold water was run into the churn,—about one-third of the bulk of the cream. Then the churning was continued a short time, and the granules became larger. The sudden chilling of the fat at this stage undoubtedly gives their butter the dry, mealy appearance which is so characteristic of the Danish butter.

As soon as churning is completed the butter is removed with a sieve to a wooden box, where it is plunged into water at a temperature of 60°. It is then placed on a table worker and salted at the rate of ½ ounce to every pound of butter, when the worker is put in motion and the butter is worked about ¾ of a minute, or just enough to incorporate the salt. It is then cut into large strips and thrown into a tank of water at a temperature of 60° F. It is left in this water for two hours. The object of placing the butter in the water is to hold it at a uniform temperature until the salt is practically dissolved. It is then placed on worker again and worked about one-half a minute or until loose moisture is pressed out and the butter assumes a waxy condition.

The little working butter receives enables it to hold a high per cent. of water. It has been demonstrated at our school that every revolution of a combine churn will expel moisture at the rate of about 3 per cent. with butter at a medium temperature.

The average water content of the Danish butter in 1902 was 14.54, or, I would say, about two and one-half per cent. higher than the butter made in Canada and the United States. In other words, the Dane makes 2½ lbs. more butter from every 100 lbs. of butter fat than you do. This little country, which has an area of something like 15,000 square miles and populatio of about 2,500,000, exported in 1902 175,000,000 lbs. of butter to the English market, and their soil is no better than yours. In fact, when I first entered Denmark, with its somewhat undulating surface and its beech forests, I was reminded very much of the Province of Ontario.

One great factor that enables Denmark to produce a uniform product is that the creamery business is practically all run on the whole milk system. Their method of scoring butter every fourteen days has been a great aid to them in meeting the requirements of the English market. They have no set time for a maker to exhibit butter. They have what might be termed a called system. They wire a creamery to send a keg of butter to Copenhagen or some other point the day of shipment. Now, this butter is held at about the same temperature that it will meet in transit to the English market, and scored about the same time the rest of the butter will arrive in England, so if there is any fault to be found with the butter on arrival in England their experts will know the reason why by examining the butter left at home, and they will be able to point out the defects at home and suggest remedies. The result of this is a uniform quality, which is so much desired by the English merchant.

The European makers of both butter and cheese do not seem to be as well posted on the underlying principles of dairying as our makers or the Canadian makers. The tendency there is to look up to leaders. The average maker does not seem to possess the same individuality characteristic of our makers. This may be beneficial in some respects, if the leaders are competent men, as a more uniform product would thus be obtained. Still, I prefer individuality in a maker. I was particularly interested in observing how closely they followed the rules laid down by their instructors. I visited the home of what was supposed to be one of the best makers of Gouda cheese in Holland. He had the rules printed and posted up in his make room as laid down by Government instructors.

One of the requirements was that cheese should be pressed five hours and as these cheese are made two or three times per day from freshly drawn milk, the last making in the evening they keep under pressure until about half-past nine. At that period the pressure was released and the cheese was permitted to stand until four o'clock in the morning. Then pressure was again applied for two and one-half hours. An ordinary American maker would have left the cheese under pressure all night and removed them in the early morning, which would have been equally as well, I think. Everything connected with cheese-making seems to be largely a question of rules rather than individual judgment.

Regarding water content of butter, my understanding is that a committee appointed by the English Parliament a few years ago made a recommendation of 16 per cent. as the maximum amount of water butter should contain. Some concessions have been made since, I understand, for the Irish pickled butter, which usually contains a very high per cent. of water. Now, I do not wish to give the impression that I advocate or favor abnormal quantity of water in butter. I think, however, that this is a question of business and common sense. If a maker can incorporate 14 or 15 per cent. water in butter, he is justified in doing it. Butter, like many other articles of diet, is not eaten solely for its nutritive value, but more as a relish in connection with other foods rich in protein. Take many of the foods that we relish and prize highly as articles of diet, and they run high in water content. Bread contains about 35 per cent. water. Cheese contains over 30 per cent. The edible portions of beef contain from 43 to 66 per cent. Tenderloin steak, which we prize so highly, owing to its palatable, juicy nature, contains 66 per cent, and some of our vegetables run over 90 per cent., therefore I cannot see any reason why butter should not contain at least 15 per cent. water.

This question was brought to my mind very forcibly a little over a year ago when attending the California convention. It seems that in one of the cities out there they have two creameries,—one a large central plant making many thousand pounds of butter per day, and a small, individual creamery. It seems from the address delivered by the manager of the large plant that the small creamery was paying a higher price to patrons than the larger one, so the manager of the larger plant advocated having a law compelling the state inspection of the tests, as he advocated that some creameries were paying high prices by cutting tests. I took issue with the gentleman, and told him that the tests might be all right, and that the difference possibly was due to the one maker possessing greater skill in incorporating water or in getting a greater overrun. This idea was hardly acceptable to the manager of the large creamery at first, but he finally came to me and insisted that I go 200 miles and visit their plant and offer any suggestions I saw fit for the improvement of their business. I finally went to his place, and found the maker, who was receiving a salary of $100 per month, knew about as little of the principles of butter-making as any creamery man I had ever met in charge of a large plant.

I do not think I could have recommended to him any better methods than he was using for getting a light overrun. He churned his cream at a very low temperature into fine granules and washed the butter with extremely cold water, and permitted it to drain for nearly an hour before applying the salt. After adding salt he worked his butter fifteen minutes, and still there were some mottles visible.

I asked permission to superintend a churn and working of butter, and the result was that the manager estimated I had gained for them twelve pounds of butter to the hundred more than what had been produced there. It is needless for me to say that the next day this maker lost his position.

The greater the per cent. of water butter contains, the higher the per cent. of salt can be incorporated. The salt in well-worked butter should be held in solution. The water in butter will take up about 18 per cent. of its bulk in salt, or, in other words, you can incorporate about 18 per cent. salt in a saturated solution in butter. For instance, butter containing 16 per cent. water can hold about 3 per cent. salt perfectly dissolved.

To further illustrate this point, I will give you the experience of two large creameries in one State, receiving in the summer months about 60,000 lbs. of milk each daily. The one plant is operated in a Norwegian community, and the other in an American community. The American plant already had one of our best makers in charge of it. The Norwegian creamery sent to me for a first-class maker. I sent over to their annual meeting a young man whom I considered to be one of the best creamerymen in the state. He asked them $90 per month for his services. They had been paying $55 per month, so were startled by the price asked. Another young man who had not much experience was there also seeking a position. He offered to take the position at $55 per month. The high-priced young man tried to tell them that he could make his wages above the inexperienced maker from the extra amount of overrun he could obtain. The Norwegians could not see things in that light. They told him the separators would skim just as clean for the other man as for him; that all he had to do was to sour and churn the cream, and there could not be any difference in the overrun, so they engaged the cheap man.

The following summer I inaugurated an educational scoring contest where the butter was scored monthly, criticised, and instructions sent to each maker on how to improve the quality of his goods. In connection

with this a complete chemical analysis of the butter was made. In making comparisons between the two creameries just mentioned, I found a difference in the yield of $17.50 per day, or a difference of $455 per month in favor of the high-priced man. The one creamery saved $45 per month on the maker's wages and lost $455 per month on the yield. Not only this, but the high-priced maker's butter sold for ½ cent per pound more than the other maker's butter. This is what might be called a penny wise and pound foolish method of economy.

The paying of high wages does not always mean high skilled labor in return, but high skilled labor will always demand high wages sooner or later. It has been demonstrated by experiments that excessive churning means excessive moisture in butter, and also a high per cent. of casein. When such methods are carried to extremes it injures the keeping quality of the butter. We have in our country a number of large creameries, or what we term central plants. The cream is shipped in hundreds of miles and churned at some central point. Some of these plants make as much as 50,000 lbs. of butter per day, so even a small fraction of a per cent. means a lot of money to them, and this question receives strict attention from their managers and chemists. I may be giving away a secret. The method used by many of these plants is to churn at a low enough temperature to get an exhaustive churning, or so that butter will gather in 30 or 35 minutes. Let the churn run until the butter gathers in granules as large as peas; remove buttermilk and place fifty or sixty gallons of water in churn, put rolls in gear and work the butter for ten or eleven revolutions in the water with Disbrow churn. This has the effect of getting the butter in a condition where it will hold an excessive amount of water. It has the same effect on the butter as excessive churning; also removes a lot of undesirable casein. At this point the water is removed and the salt is placed on the butter and the rolls are put in gear again and the butter worked for twenty revolutions, when it is ready to pack. Some of these plants have the business down so fine that they can incorporate between fifteen to sixteen per cent. of water right along and 3 to 3 1-3 per cent. of salt, thus keeping within the limit of the law. It is about impossible to tell the water content of butter outside of chemical analysis unless you incorporate over 20 per cent. In fact, butter that is high in water content is usually dry in appearance. To illustrate this further, I will quote from a Washington report. In the September scoring of the National contest held in Chicago in 1902, the scoring was done by the Government expert, and one of the leading professors of dairying in one of our colleges. At request of Major Alvord, abnormal packages were left out for chemical analysis. They set aside four packages of butter. Two of them were marked, "worked too dry," and two as "full of water." The two packages marked full of water had 10.77 and 11.45, averaging 11.11 each. The two marked as worked too dry had 11.25 and 13.30, averaging 12.27 each, thus showing the lack of knowledge on the part of the experts. Experts, like everybody else, are liable to make mistakes sometimes.

In connection with quantity, flavor is a quality that is desirable in all edible foods. Each kind of food has its own distinctive flavor. This is particularly true of butter, as in scoring butter in various parts of the world about one-half the total for perfection is allowed for flavor. When examining butter in various parts of this continent, and in the English markets and Denmark, I find the same peculiar quality is desirable. People may differ in the shade of color and the exact amount of salt used, but when it comes to flavor they all want a sweet, clean, pleasant aroma. Ordinarily the factor that controls flavor is cleanliness. When I was a boy it was a common

saying that a certain woman was the best buttermaker in the community. Now, had it been said that a certain woman was the cleanest buttermaker in the community, the statement would be challenged at once. Nevertheless, there was considerable truth in it. The flavor of butter is largely a product of fermentation, and the kind of bacteria that give the desirable flavors grow and thrive best under the most perfect sanitary conditions.

Now we find just the reverse in winter conditions. As soon as cows are milked in the stable a noticeable change takes place in the flavor of the butter. We call this winter conditions. It was formerly supposed to be due to the dry feed given the cows during the winter, or to the advanced period of lactation. It was found upon a bacteriological analysis of the milk at our school that when the cows were milked in the stable during the winter months about 75 per cent. of the bacteria in the milk were of the undesirable kind, while in June, which is considered the best month of the year for making butter or cheese, only about 10 per cent. of the undesirable bacteria were present.

The species of bacteria that usually predominate in stables are of the putrefactive variety, those that cause ordinary decay, hence the skilled buttermaker skims a much thicker cream in the winter than he does in the summer to get rid of as much milk serum as possible, thus carrying off a lot of the undesirable bacteria. Then he dilutes his cream with a heavy starter, which only means adding an enormous quantity of the right kind of bacteria, so that they may predominate and control the souring of his cream.

From my experience as a butter judge in various parts of the country, I think I am safe in saying that the makers who use starters, and endeavor to control the conditions of cream ripening, score usually three or four points higher than the makers who follow the old methods. The successful cheese and butter maker of the future must have a knowledge of the principles of bacteriology and dairy chemistry, as well as a practical knowledge of dealing with men.

I believe salaries for all well-trained, competent men in the dairy business will be materially increased in the future. Better sanitary methods must be pursued on the farm as well as in the creamery, as we only reach the highest point of perfection when all concerned fulfill their parts toward completing the work.

Now, in closing, I would appeal to the butter and cheese makers to put forth their best efforts the coming season. A little extra time spent in improving your condition may not be appreciated by your employer at first, but it helps you, and if you turn out extra goods the public will soon know it and you will be rewarded accordingly. The men who are now at the head of the dairy business practically all started at the foot of the ladder. They will soon pass from the field and leave you in possession, and see to it that you are equipped for carrying on the work still further.

"Never you mind the crowd, lad,
Nor fancy your life won't tell;
The work is the work for all that,
To him that doeth it well.

"Just fancy the world a hill, lad,
Look where the millions stop;
You will find the crowd at the base, lad,
There's always room at the top."

RURAL CONSOLIDATED SCHOOLS.

Hon. John Gould, of Aurora, Ohio, then gave an interesting address on Union Schools in Rural Sections.

COMMITTEES.

The following committees were appointed:

RECEPTION.—T. Ballantyne, Jno. Brodie, W. K. MacLeod, A. F. McLaren, M.P.

MEMBERSHIP.—W. A. Bothwell, Jno. McQuaker, W. M. McCully.

HALL.—I. W. Steinhoff, James Connolly, W. R. Shearer.

RESOLUTIONS.—Robt. Johnson, J. N. Paget, I. W. Steinhoff, W. K. MacLeod.

NOMINATIONS.—T. O'Flynn, John Parsons, D. A. Dempsey, Geo. McKenzie, W. D. Angus.

The CHAIRMAN: The cheese in the exhibition hall were scored this afternoon by a man whom the dairymen of the whole of Canada recognize as a competent authority, a man in whom we have abundant confidence, and I am proud to be able to tell you that one cheese in that room was scored this afternoon with 100 points,—a perfect cheese. (Applause.) It is not very often that we have been able to say that we have made a perfect cheese, although we have been making some remarkably fine cheese; but the cheese has been on exhibition here to-day that has scored perfection, and I am further able to announce that the recipient of that trophy is Mr. O. Schweitzer, and I understand that Mr. Schweitzer was also the winner of the trophy of the Canadian Exhibition at Toronto last September.

Mr. Schweitzer has kindly donated this cheese to the Association, and it will be cut up and distributed to the parties who are present to-morrow morning, so that you will have an opportunity to see what a perfect cheese is like.

INSTRUCTION IN CHEESE FACTORIES IN WESTERN ONTARIO.

By G. H. BARR, CHIEF INSTRUCTOR, LONDON.

The system of instruction in cheese factories in Western Ontario, as carried on in 1903, was extended along the same lines during 1904. Meetings of the makers and factory men were held in seven districts in the fall of 1903, and arrangements were made at those meetings to form a group of factories in each district and employ an instructor during the season.

The territory west of Toronto was divided into seven groups or syndicates of factories as follows: Ingersoll, Woodstock, Brantford, Simcoe, Stratford, Listowel, and London. These groups cover the main cheese producing sections in Western Ontario. There are a considerable number of factories scattered over the country outside of these districts, which are difficult to reach to give instruction to, but arrangements were made whereby any factory outside of the groups making application for instruction would be visited for $3 for one visit and $2 per visit if more than one visit was made. Each factory in the group paid a fee of $10.

Before beginning work in the factories the instructors spent ten days at the Dairy School, Guelph. During these ten days lectures were given by the Professors of the College on chemistry, bacteriology, and breeding of dairy cattle, thus giving the instructors a broader and better knowledge of the scientific side of dairying. Besides these subjects, a great deal of time was taken up in discussing the methods of making cheese in detail, the care

of milk and the plan of instruction to be adopted in the factories during the summer, so that all the instructors started out with uniform methods along every branch of their work.

The instructors commenced work about the 20th of April. This is not early enough in some of the districts, as last season a great many of the early cheese were of an acidy character, which could have been prevented had the instructor been on the ground earlier.

Last spring was rather peculiar regarding the development of acid in the milk. Why it should have developed so rapidly is not easily accounted for, and great care must be taken next spring to prevent this condition in the milk.

During the summer months there were times when it seemed almost impossible to make fine cheese. Some of the oldest makers claimed that they never had as hard work to make fine cheese. The weather was comparatively cool, still the milk seemed to be in a bad condition to make cheese. I have no doubt the low price of cheese had something to do with this condition, as the patrons did not take as good care of either the cows or milk as they usually do when cheese is a good price.

The answer quite frequently given by patrons when asked to improve the quality of their milk was: "The price we are receiving will not warrant spending any time in cooling the milk or doing anything else to it." This condition made the work of visiting the patrons more difficult than formerly, as they were in many cases very indifferent about the milk question.

In too many cases the makers are afraid to have the inspectors visit their patrons for fear they will get offended and stop sending or go to another factory. I do not think this is wise, as the patrons are usually willing to receive any information when they are approached in the proper spirit, and in nine cases out of ten they do the best they know: but how often do things wrong because they have not given the question any serious consideration. The two main points which we endeavor to keep before the patrons in regard to producing a finer quality of milk are greater care in keeping it clean, and cooling it to a temperature of 65 to 68 degrees as quickly as possible after milking.

Where bad flavors were found in the milk the cause in nearly all cases was found due to keeping the milk over night in bad surroundings, such as close to whey barrels, barnyards, hog-pens and milking yards.

The bitter or goosey flavor was traced repeatedly to rusty cans, or cans not properly washed and scalded after the whey had been returned in them; and from our work of the past two seasons, I have no hesitation in saying that this particular bitter or goosey flavor is due entirely to filth in some form or another, and is nearly always in the cans. Cooling the milk in cans which are rusty or not clean will not prevent this flavor from developing. It is very common, and there is only one thing to do to prevent it, and that is to discard all rusty cans, and keep the good ones clean.

Very few objectionable flavors were traced to the feed the cows were getting. In one district considerable rape was fed, which gave the milk a bad flavor, and showed in the cheese. The flavors from the food the cows receive are very few in comparison to the objectionable flavors from unclean milking, bad surroundings, and rusty and improperly washed cans.

The resolution adopted at all the district meetings in 1903 regarding the receiving of milk which had been rejected at another factory had a good effect throughout the season, and so far as I know was lived up to by the makers.

The improvement in the buildings and equipment this year is greater than ever before. A great number of power agitators were put in, and also new vats and curd sinks, which did away with a great deal of the sloppy, wet floors, which are too common in our cheese factories yet.

Several new factories were put up, and are thoroughly up-to-date, having cement floors throughout and the curing-room built on the Government cool curing-room plan, with ice chambers attached. A great many cement floors have been put in in place of the old leaking wooden ones, several cement whey tanks have been put in and are giving good satisfaction.

The drainage at nearly all our factories is yet deficient. The washings from the floors go into the whey at most of them, which is a bad condition, causing the whey to be dirty and bad flavored. The whey tanks at a great many factories are unsightly and bad smelling, and are not cleaned often enough.

The best system of whey tanks I have seen is a shallow cement tank about three or four feet deep with an outlet in the bottom into a tile drain. This style of a tank can be cleaned in a few minutes without going into it at all, by using a long handled brush. Another tank should be elevated with an outlet from the bottom into the same tile drain. Were this arrangement adopted it would be little trouble to keep the whey clean and comparatively sweet.

It is very gratifying to notice the improvement inside of many of the factories, where the makers have whitewashed the walls and ceiling and painted the piping and equipment.

In the manufacture of the cheese the use of a pure pasteurized culture is becoming very general, and is doing a great deal towards making a more uniform quality of cheese and shorter hours for the makers.

The acidimeter is being used in a large number of factories, and where it is used carefully it is of great assistance to the cheesemaker; but the acidimeter in careless hands is a dangerous instrument, and great care must be exercised when discarding the hot iron for the acidimeter.

The method of handling the curds in factories under instruction is becoming very uniform. The main points in which improvement has been made are more careful cooking of the curd and stirring the curd dry at driping time.

My observations this year have been that when makers make a practice of stirring quite dry in the curd sink, the cheese are of better flavor and more silky in texture.

There are too many badly finished cheese shipped yet, although there is great improvement since last year in many of the factories. This defect is due in many cases to badly fitting followers and poor hoops, but in too many cases it is due to the laziness or carelessness of the makers.

The question of labor in the cheese factories was not such a difficulty as a year ago. Still, wages for help is very much higher than it was three or four years ago. The price of supplies are higher, also, especially for boxes, while the price for making the cheese has not risen accordingly; hence there is very little money in the business for managers of the factories, and it is difficult for them to employ enough help to keep their factories and surroundings as neat as they should be. Too many of the men working in the cheese factories are careless and slovenly about their dress and appearance, while many of them are always clean and tidy, and a credit to the trade.

There were a number of cases during the fall where boxes with green heading were used to ship the cheese, and a loss incurred through the ends of the cheese becoming soft. Cheese box manufacturers will do well to put

a stock of dry heading, so that this condition will not occur another year.

The instructors have all worked hard, and have done much good work. Mistakes have been made, but who among us is perfect? No man is able to please everybody. The instructors have at all times been anxious to do what they considered would be for the advancement of the industry. Probably one of the hardest things they found to do was to give a report on the quality of the cheese that would be considered correct by both buyer and seller. But when we find buyers, men who should know when cheese are right, disagreeing as to quality, one saying the cheese are not right, while another will come along and say there is nothing wrong with them, we cannot expect the instructors to be able to always give a report that will agree with the buyers' ideas. But I have this to say, that I have not seen a lot of cheese rejected in the past season that were of finest quality.

I am very thankful to the buyers for their co-operation and assistance to me during the past season in endeavoring to improve the quality of the cheese.

There were not many patrons' meetings held during the season. It is almost impossible to get the patrons to come out in the busy season. Twelve meetings were held and I attended ten of these.

During November and December district meetings were held in all the groups. Some of these meetings were well attended while others were not.

The questions discussed were the methods of instruction, preparing and using a starter, and making the cheese in every detail. These meetings are a great benefit to those who attend them, as local conditions are fully discussed and much useful information is gathered. At all the meetings arrangements were made for carrying on the work of instruction during the coming season.

In the Listowel group, Mr. Pannell unfortunately resigned before the season was out, to accept a situation in South Africa, thus leaving some of the factories in the group one visit short and others two visits. In the London group, Mr. S. P. Brown, Birnam, very kindly took some of the work, but some of the factories could not be visited as often as they applied for. There are 219 cheese factories in Western Ontario. The instructors visited 166 of these. Of the 53 remaining 36 are in the territory covered by the groups, the other 17 are widely scattered.

In conclusion, I wish to express my appreciation of the loyalty and kindly feeling which the instructors have always manifested towards me and the work assigned them, also the hearty co-operation of the Committee on Instruction and the Directors of the Association.

The following is a detailed statement of the work done in each group during the season, as well as a list of the factories under instruction.

SUMMARY STATEMENT.

Name of Group.	No. Factories.	No. Visits.	Curd Tests.	Lact. Tests.	Babcock Tests.	Patrons visit'd	Expenditure.	Meetings.	Instructor.
Simcoe	23	150	626	3348	194	43	$15,850	2	W. G. Medd.
Ingersoll	25	125	602	3156	142	67	8,650	.....	J. H. Scott.
Brantford	23	113	698	7247	85	85	4,035	.....	J. R. Burgess.
Stratford	26	134	744	4080	60	56	8,305	1	A. McKay.
Woodstock	20	199	866	3217	18	75	15,900	3	F. Herns.
Listowel	23	94	201	3681	.....	20	2 351	2	H. Pannell.
London	26	62	213	2696	14	5	3,967	4	G. H. Barr and S. P. Brown.
Total..	166	877	3,950	27,425	513	351	59,058	12	

Ingersoll Group.—Jno. H. Scott, Instructor.

Name of Factory.	No. Visits Made.	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made	No. Patrons Visited.	Estimated Expenditure on Factory.
						$
Mapleton	5	20	390	2	.....	200
Gladstone	5	30	231	.....	3	.....
Belmont	6	18	250	.....	2	100
Westminister	5	20	135	.....	.....	100
Harrietsville	5	.....	298	8	.....	.....
Lyons	5	50	158	.....	.....	700
Northwood	5	2	265	.....	.....	100
Springfield	5	36	.....	.....	11	100
Burnside	5	34	.....	.....	3	.....
The Gore	5	25	26	.....	.....	.....
Avon	5	19	158	.....	.....	.....
D. and W. Oxford	5	12	196	.....	.....	.....
Verschoyle	5	20	212	.....	.....	.....
Culloden	5	24	.....	60	15	100
Bayham and Malahide	5	25	.....	.....	2	.....
Malahide	5	29	.....	.....	3	250
Mt. Elgin	5	40	150	2	.....	100
Dereham Centre	5	20	256	.....	.....	100
Maple Leaf	5	23	.....	.....	1	100
North Oxford	5	21	1	.....	1	.....
Crampton	5	34	92	.....	6	.....
Salford	6	30	187	.....	2	.....
Mossley	5	40	65	.....	13	2,500
North Bayham	5	19	.....	70	3	200
Foldens	3	11	86	.....	2	4,000
	125	602	3,156	142	67	8,650

One meeting held.

Woodstock Group.—Frank Herns, Instructor.

Name of Factory.	No. Visits Made.	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made	No. Patrons Visited.	Estimated Expenditure on Factory,
						$
Burgessville	6	42	325	5	2	250
Bright	6	49	390	4	7	100
Cathcart	.....	.....	.....	.....	.....	400
Diamond	7	19	221	1	1	500
E. and W. Oxford	6	156	180	2	3	1,000
Harley	6	24	172	.....	3	500
Innerkip	6	41	.....	3	10	350
New Lawson	6	77	198	3	2	200
New Durham	7	36	286	.....	1	550
Norwich Gore	5	31	320	.....	2	150
Newark	6	36	100	.....	2	4,500
Eastwood	7	115	291	.....	15	200
Spring Creek	6	28	.....	.....	4	500
Strathallan	6	36	.....	.....	1	200
Cassel	6	22	32	.....	6	5,000
Soho	6	36	332	.....	8	300
Brookbank	6	32	35	.....	1	50
Sweaburg	5	22	60	.....	2	300
Lossee	6	28	100	.....	1	500
East Oxford	6	16	103	.....	3	300
Vandicar	5	20	72	.....	1	50
	120	866	3,217	18	75	15,900

81 calls outside of regular visits.
550 cards sent out.
3 meetings of patrons.

Simcoe Group.—W. G. Medd, Instructor.

Name of Factory.	No. Visits Made.	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made	No. Patrons Visited.	Estimated Expenditure on Factory.
						$
Excelsior	5	28	60	.....	1	.....
Lynn Valley	6	11	166	5	4	.....
Vittoria	6	3	81	5	2	.....
Walsh	6	14	199	12	2	.....
St. Williams	6	29	165	22	1	100
Clear Creek	5	20	76	.....	.....	100
Nixon	6	35	249	8	3	50
Rockford	8	181	207	65	3	350
Tyrell	6	30	130	12	3	200
Villa Nova	6	16	249	.....	2	150
Waterford	6	20	181	.....	.....	300
Hagersville	5	18	85	.....	1	1,800
Boston	6	28	.....	.....	.....	1,000
Vannesa	6	6	.....	.....	1	.....
Bookton	5	27	124	11	.....	200
Summerville	5	27	109	13	1	300
Courtland	4	36	.....	.....	9	3,500
New England	4	13	223	.....	1	.....
Black Creek	5	16	367	18	.....	1,500
Jarvis West	5	19	190	16	5	4,500
Fairground	5	31	327	7	.....	1,000
South Middleton	5	19	160	.....	.....	.....
Home Wood	6	19	.....	.....	4	800
	127	626	3,348	194	43	15,850

23 calls outside of regular visits.

Brantford Group.—J. B. Burgess, Instructor.

Name of Factory.	No. Visits Made	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made	No. Patrons Visited.	Estimated Expenditure on Factory.
						$
Attercliffe	7	34	186	.....	4	.....
Bismark	5	24	172	.....	.....	.....
South Cayuga	6	35	260	.....	2	25
Fork's Road	6	50	493	.....	4	30
Canboro	5	29	632	6	.....	75
York	7	22	457	3	2	50
Clanbrassil	5	18	105	.....	1	1,800
Caledonia	6	24	165	.....	.....	.....
South Grimsby	5	54	974	8	9	150
Welland	4	32	406	4	1	.....
Woodburn	5	41	308	.....	2	25
Selkirk	5	22	320	6	2	.....
Cainsville	7	42	337	14	2	50
Caistorville	2	18	156	.....	.....	125
Alberton	5	27	304	6	.....	.....
North Brant	3	14	46	.....	1	.....
Renforth	5	24	286	6	2	100
Sheffield	6	36	317	.....	2	.....
Mt. Pleasant	6	46	435	6	2	25
Burford	3	32	106	.....	2	1,500
Humberstone	2	15	101	.....	.....	.....
Harrington	2	10	129	12	.....	.....
Lynden	6	49	552	14	4	80
	113	698	7,247	85	42	4,035

2 new Factories, Burford and Clanbrassil.

Stratford Group.—Alex. McKay, Instructor.

Name of Factory.	No. Visits Made.	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made	No. Patrons Visited.	Estimated Expenditure on Factory.
						$
Avonbank	7	7	239	.....	1	500
Avondale	6	36	318	11	5	.....
Blanchard and Nissouri	6	56	138	.....	8	800
Blanshard	6	20	260	.....	1	800
Brooksdale	6	26	559	2	2	900
Bennington	6	34	174	.....	.....	375
Black Creek	5	54	57	4	7	200
Classic	5	3	29	.....	.....	100
Dorchester Sta	1	4	41	.....	.....	.....
Devizes	7	17	96	.....	2	30
Evelyn	6	51	.....	.....	2	3,0 0
Ellice and Logan	1	13	.....	.....	1	.....
Farmers' Union	6	47	127	6	1	800
German Union	5	56	205	6	10	.....
Honey Grove	5	43	233	3	.....	.....
Hawkesvilie	1	8	.....	.....	.....	.....
Kintore	7	.....	481	10	.....	.....
Maple Grove	6	5	242	7	.....	100
Monkton	1	5	.....	.....	.....	.....
Oak Grove	6	49	174	.....	8	.....
Red Star	6	8	352	5	.....	200
Sebringville	6	13	180	6	.....	.....
Tavistock	5	68	.....	.....	.....	100
Thamesford	6	57	.....	.....	.....	.....
West Zora	6	49	.....	.....	3	.....
West Nissouri	6	15	175	.....	5	400
	134	744	4,080	60	56	8,305

Sent post cards to all the patrons of Thamesford factory.

Listowel Group.—Harry Pannell, Instructor.

Name of Factory.	No. Visits Made.	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made	No. Patrons Visited	Estimated Expenditure on Factory.
						$
Pine River	4	17	230	.....	1	460
Ripley	4	25	168	.....	2	225
Tiverton	4	.....	285	.....	.....	.....
Rothsay	5	15	100	.....	.....	200
Wyandotte	5	13	300	.....	.....	.....
Carthage	5	.....	265	.....	.....	.....
Elma and Morrington	5	1	312	.....	.....	470
Elm Bank	5	3	86	.....	.....	.....
Newry	5	1	.....	.....	.....	100
Donegal	5	3	.....	.....	.....	.....
Silver Corners	4	10	94	.....	.....	.....
Trowbridge	3	14	.....	.....	.....	550
Molesworth	4	8	175	.....	1	150
Wallace	5	9	250	.....	.....	.....
Fordwich	1	9	108	.....	.....	.....
Cotswold	4	29	265	.....	.....	196
Ethel	5	.....	215	.....	.....	.....
Goldstone	3	6	250	.....	.....	.....
Brussels	4	3	167	.....	.....	.....
Maitland	5	.....	160	.....	.....	.....
Nile	2	4	48	.....	10	.....
Kintail	2	1	83	.....	.....	.....
Elma	5	30	120	.....	6	.....
	94	201	3,681	.....	20	2,351

Expenditure not given fully.

London Group.

Name of Factory.	No. Visits Made.	No. Curd Tests Made.	No. Lact. Tests Made.	No. Babcock Tests made.	No. Patrons Visited.	Estimated Expenditure on Factory.
						$
Ballymote	4	1	424			
North Dorchester	3	9	127		1	
Pond Mills	1		60			70
Delaware	3	2	90			
Glanworth	4	10	160			
Ridge Tree	4	12	375		1	500
Keyser	2	89	102		2	813
Kerwood	2		87			407
Siftons	2	5	60			
Appin	2		60			
Straffordville	1		122			60
Lake View	2	9	154	6	1	527
Laurel	2		225	8		405
Payne's Mills	2	4	64			475
Chatham Gore	1		38			275
Proof Line	2	8	56			
Camlachie	3					180
Uttoxeter	3					75
Fernhill	2	2	27			10
Mt. Carmel	3	17	43			
Muncey Rd.	3	8	114			
Strathroy C. & B.	2	6	47			
North Street	2	10	59			125
Yarmouth	3	12	78			50
Union	3	9	100			
Jessopville	1		24			
	62	213	2,696	14	5	3,967

Expenditure not given fully.

During the fall I attended 16 annual meetings in the interest of the patrons. To-day we have on the platform the instructors, and I hope you will not think we have them here to take part in the discussion because they know more than any other person, but I felt in getting out this programme that we ought to have somebody open up the subjects, and I do not know anybody that would do it better than the instructors, and I thought you would like to get at them and ask them questions. I had a letter last night from Mr. Publow saying that he could not be with us, and I regret it exceedingly, as he would be able to give us considerable information.

THE EDUCATIONAL ADVANTAGES OFFERED DAIRYMEN.

By G. A. Putnam, Superintendent of Farmers' Institutes.

I am pleased to meet the dairymen of Western Ontario for the first time, and I wish I had the time and ability to impress upon each of them the importance of the position which they occupy in this great industry, the greatest that we have, agriculturally.

The achievements of the past twenty-five or thirty years have been due to the untiring efforts of the fathers of the industry,—such men as the Hon. Thos. Ballantyne of your own city—who have sacrificed time and money to

establish an industry in which they had every confidence, but which the majority of farmers and business men at first looked upon with suspicion. But although this industry has been well established, and we now hold an enviable position in the British markets, this is no time to slacken our efforts. We should make all the greater effort, for the nearer we come to perfection, each step in advance will be found more difficult and demands greater perseverance and care.

The record as to both quality and quantity has not been what we would wish during the year. The quantity made the year before was so far in advance of any previous year that we could hardly expect to see such an unnatural growth maintained. However, we must look to the future with hope and determination. The volume of business and quantity made vary from year to year, but the average of any three or four years will always be ahead of a like number of preceding years. One year's poor results must not discourage us.

I was sorry to hear from Mr. Barr's report that the Ingersoll district is apparently slackening in its efforts. It may be that the history of the Eastern part of the Province will be repeated in the West. This year at the Brockville Convention, we heard at nearly every session that the district of Brockville, which for many years has been famous for its superior quality of cheese, has fallen behind, and it may be that unless the Ingersoll district looks to its laurels, and puts forth a special effort, it will find that the Simcoe district, which has been considered among the poor sections, will replace it.

Being limited to time, my remarks will be confined for the most part to the educational advantages afforded factorymen and dairy farmers. How can farmers and factorymen derive the greatest good from the educational advantages which are presented to us, and how can we all co-operate and do our utmost to further the interests of the industry?

For the two classes referred to, we have special educational advantages, namely, two Dairy Associations, three Dairy Schools, and a system of creamery and factory instruction which covers the whole Province. In addition to this, provision has been made for due prominence to be given to dairying in connection with the general system of agricultural education in the Province. We might class under this general heading, the following: The Agricultural College, Farmers' Institutes, the Agricultural press, the Winter Fair at Guelph, and the various Live Stock and other Associations.

In the regular course at the Agricultural College a fair percentage of students take advantage of the opportunity for specialization along dairy lines before graduation, and the success of those who have taken this course is the best indication of the thoroughness of the instruction given. Among the many experiments carried on at our Provincial institution, original work is being done not only in the manufacture of cheese and butter under varying conditions, and the curing and storage of the same, but also in the breeding and feeding of the cow, and the growing and comparison of all kinds of food thought to be best adapted to the production of a maximum amount of milk with a minimum of cost. The results attained and the conclusions arrived at, and the information sent out from the College proper and the Dairy School, have been of incalculable benefit to the dairymen of this country.

The establishing of Farmers' Institutes had for its object the dissemination of information along all lines of agriculture—general cultivation of the soil, growing of cereals, roots, fodder crops, etc., beef production, management and feeding of dairy cattle, fruit culture, etc., etc.—and that much

good has been accomplished by this system is unquestioned. General agricultural information has been given to the farming community, and much time and effort has been devoted to instruction along special lines. The time is now coming—judging from the requests for information received from various parts of the Province—when we must be prepared to furnish to each locality specialists who are authorities along the line or lines followed in the districts concerned. In some counties we find several distinct sections, each of which is devoted almost exclusively to a special line of agriculture, different from that followed in other sections, and in order that the Institute work may be made to accomplish the greatest good, information is being secured regarding each section, with a view to sending specialists to instruct farmers along their line of work, and, if possible, to suggest changes in their methods or lines of agriculture which will likely result in greater returns for the labor and money expended.

We must also be prepared to demonstrate where demonstration is possible. A certain amount of this has been done in the campaign against impure seeds. Charts and tables have been used to illustrate the desirable types of cattle, horses, hogs, sheep, fowl, etc., and the comparative value of various grains and kinds of food. We must be prepared to adopt some method of demonstration which will impress more forcibly upon the farmer the desirable types of live stock, and the best samples of seeds, grains, roots, and grasses. Some have stated that the day of Farmers' Institutes is about over; that it will be superseded by some other method at an early date. I believe, sir, we have only touched the border of the possibilities in this field of agricultural education. We cannot, however, hope to accomplish much without the co-operation of the officers and directors. The success of the Institutes depends to a great extent upon the efforts of the secretary—the real executive head of the local organization—and the assistance given by the directors in the different townships in securing membership and in making the local meetings a success.

One of the strongest forces for the advancement of agriculture in this fair Province is that of the agricultural press. Through this medium the work of the Agricultural College, both educational and experimental, and the reports of Institute meetings and conventions of the various associations, are sent broadcast over the land at an opportune time, and articles by well-known authorities appear regularly. No farmer can afford to be without one or more of our Canadian agricultural papers. No one of these papers can hope to reach a very large percentage of the rural population. Many of those who are most in need of the information contained in these publications subscribe for only their local paper. Therefore, it would be well for the directors of this Association, the makers, and instructors sent out by the Department of Agriculture, to furnish items of interest and value regarding the work being done to the local papers from time to time.

I have not time now to refer to the general education of the farmer by the Winter Fair at Guelph, and the efforts of the various Live Stock Associations.

Among the *special* provisions made for the dairymen we have the Eastern and Western Dairymen's Associations. Grants are made to these associations in order that they may be enabled to further the interests of the cheese and butter industries. Great good has been accomplished, and it is gratifying to know that the efforts put forth by them are assuming more and more an educational nature. The exhibit in connection with this convention has proven one of the strongest influences in impressing upon the minds of

the makers in attendance the mistakes to be avoided in manufacturing, and the ideal toward which all should aim. The directors representing the various districts have a responsibility which has not, I am afraid, been fully appreciated by them in the past. They are familiar with the local conditions, and are in a position to assist the Chief Instructor of the Department as no other person can, and it is hoped that during the coming season they will keep a watchful eye over their respective localities, and furnish information to the papers regarding the work being done.

It is not necessary for me to state anything regarding our Dairy Schools, of which there are three in the Province. They are doing a work which could not be accomplished in any other way, and I would take this occasion to impress upon makers the opportunities afforded at these schools. If a maker cannot take a full course, or if he has already spent a term at one of the schools, then I am sure it would be time well spent were he to devote even so short a time as one or two weeks in "brushing up" along dairy lines. Mr. Barr and his staff, as well as the instructors of the other schools, always have something of interest and value for even the best of makers.

The greatest work being carried on at present, and the one which is involving the greatest outlay, is that of dairy instruction. The producers, makers, and proprietors are coming to know the real object of this work, and do not now look upon it as only a Departmental system of detective work, but a campaign of instruction and education. The work of the past season has been fully reported to you, and I shall only add that the greatest assistance which can be given at this time is to make application for an instructor at an early date, in order that the work of syndicating the factories may be facilitated.

You must all admit that ample provision has been made for instructing and assisting the dairymen. The responsibility now rests with the producers, the instructors, the makers, the proprietors, the salesmen, and the buyers to co-operate with the object of producing a large quantity of uniformly high-grade goods, marketing it at the proper time, and placing it on the foreign market in the very best condition.

The farmer has a part to play in this industry by weeding out poor cows, and increasing the producing quality of the others. It is also of the greatest importance that he should observe the greatest cleanliness in connection with the work. Lack of definite instruction as to the best method of handling his milk is responsible for the poor condition in which much of the milk arrives at the factories. In order to correct this, we have asked the instructors to make as many personal visits as possible, and *show* the farmer and his help just what should be done. In one section of the eastern part of the Province, during the past season an instructor induced over 200 of his producers to remove their milk stands at least 50 feet from undesirable odors and surroundings, and place them where the milk would not be likely to become contaminated. If he had depended upon correspondence to accomplish this the results would have been very different, but by personal visits he had no trouble in inducing them to follow his directions. If the producers do their part well more than three-quarters of the trouble now experienced in manufacture would disappear.

The makers have a very important part to play in this work, and they should not ask "How little work can I put on this cheese in order that it will be accepted by the buyers and pass off my hands?" but he should rather say to himself, "What can I do to produce a better quality of cheese?" It is the duty of the maker to put forth the very best efforts, and to demand that the equipment and surroundings of his factory are conducive to the production of

the best quality of cheese. If a maker becomes proficient in the art of cheese-making, then he need not be afraid to show his independence and demand a fair wage and satisfactory conditions under which to work. If proprietors of cheese factories studied their own interests they would not try to engage the cheapest man, the man who will work for the least money and guarantee everything. They will find it will pay best to engage the best men and pay good salaries.

I would not venture to say anything to the buyers. They have a responsibility and duty which is not always lived up to. It was stated by one of the best authorities in the Dominion at the Eastern Convention, that the buyers were not doing what they could to make for the permanency of this industry. They know wherein they are weakening the trade. Competition is healthy, but it is possible for it to run to extremes and thereby work to the detriment of the industry.

The means of instruction which we have is good enough for all of us, and if the producer, the proprietor, and the buyer do what they can to help the industry, and do not look too much to present results, but rather to the permanency of the industry, we need have little fear as to the future. I appeal to each and every one of you to face the duties of the coming season with a determination that the quality will be of the highest, and that there will be a healthy increase over last year in quantity.

Mr. Parsons, Jarvis: The statement was made that all kinds of cheesemakers applied for situations. How are cheesemakers to know whether they are capable men or not? I have to say that no manufacturer would employ an incompetent man if he knew it. I know that as an employer I would want to have the best. If a maker writes to you, and states that he can furnish first-class testimonies, what are you to do? It seems to me there should be something done that would enable the employers and the makers to give a better standing, and I do not know of anything better than a certificate of some kind should be granted to a cheesemaker that would show that he was a capable man. The interest of the trade demands this. We have makers who are supposed to be qualified, and no doubt many of them are; but we know that some of them are not, and yet they have taken a course at the Dairy Schools. I do not say this to reflect on the schools, but it seems to me there should be something in addition to attendance there, and I don't know of anything better than granting a diploma or certificate which would set forth the man's ability. I think if that was done it would do away with engaging men who are not competent.

Mr. Putnam: If the proprietor of a factory desires to employ a good man, and if he is willing to pay a good price, he would have no difficulty in getting a good man. A number of the cheesemakers in the eastern part of the Province stated at the Convention recently held there that if they had to face the competition in making that they have faced in the past two or three years,—the competition of cheap men offering for employment—they would give up the business; and unless the pay for these makers is increased, I do not know how you are going to increase the number of good makers. A certificate is of very little use unless the man has proved his ability in a factory. It is the same in cheesemaking as with a doctor or a lawyer, or a professor—they are all doctors and lawyers and professors, but they are not all the same, and you cannot get makers all the same. I believe certificates should be issued, but not issued altogether upon the College course, but upon the ability which the man has shown in his factory work.

Mr. Barr: The question of licensing cheese factories is one to which we should give some consideration. From my own standpoint, I am very strongly in favor of doing either one or both of them. If you license a cheese factory, and if that license can be taken away from them, it will naturally follow that the man who is in that factory will have to keep it up to a certain standard or the factory will be closed up. If that factory is closed up because the cheesemaker is not able to keep it right, that cheesemaker will have to go out of business, because a company or proprietor will not employ a man who will not keep the factory right; and if you license the cheesemaker you will have to license him in such a way that the certificate can be taken from him if he does not keep the factory in proper shape and make good cheese. I think that cheese factories should be licensed, and that they should be kept up to a certain standard before they can get a license, and then they would have to place men in these factories who would keep them up to this standard. Then you could issue conditional certificates, and if I had anything to do with issuing the conditional certificates, there would be a lot of cheesemakers out of a job next spring. A lot of our men would have to qualify themselves. They would have to make arrangements to buy more clothes and more brushes and brooms, or they would have to get out of the business. I would also like the privilege of closing up some of the factories, because there are a lot of them that are not fit to bring milk into. And if you license a factory you will have to put a man in that factory who will keep it in such condition that he can make good cheese before you will be able to operate it. Therefore, I would hold up both hands for issuing licenses for every factory. Allow them to go on and open up for business in the spring on the condition that they would have to get their factory in a certain condition and to pass a certain inspection before they would be allowed to do anything more than open up. If you go into a cheese factory to-day, it is hard to tell how it will smell next July. They should be examined in warm weather, although it would not require to be very warm to smell some of them. If the factories were licensed they would be compelled to employ better men and we would give you better work, but if you issued certificates to cheesemakers you would need to have a pretty good man who would go around and take the licenses away from them. (Applause.)

CURD TESTS.

"The Curd Test—What It Has Done, and How It Can be Made More Useful as a Means of Locating Undesirable Conditions in Milk."

By Alex. McKay, St. Marys.

The question of most vital importance to the cheesemaker of to-day is how he is to obtain the raw material in the most perfect condition for the manufacturer of first-class cheese.

Before the introduction of the curd test it was very difficult to prove to the farmer that his milk was not of the quality desired to produce the best and largest quantity of cheese from a given quantity of milk. The curd test in my mind supplies this long felt want.

Our method of conducting this test, which I think might be improved on (as I will try to explain in this paper), was to examine the milk carefully as it was being received at the weigh stand, and to select the samples which we considered the most objectionable, making tests of them by handling them as near as possible in the same manner as the milk in the vats is handled; by this means we are able to get the distinct flavor of each sample. It was at first considered that the development of acid in those tests was of minor importance; but from experience in tracing the bitter milk, we find to do the best work we must develop very nearly the same amount of acid as is necessary in ordinary cheesemaking, for the reason that this flavor is rarely detected unless there is quite a large percentage of acid present. After the tests are completed, we select the most objectionable samples, and by close study of these samples and the conditions to be found on the farm from which they are sent, we are able in most cases to locate and remedy the evil. By taking the bad sample as well as one of the very best to the farm, it is quite easy to convince the patron that his milk is not right by showing him the vast difference between the sample from his milk and that of his neighbor, who is furnishing first-class milk, and showing him the very great loss which he is sustaining by furnishing milk in this condition, not only to himself, but to all who are sending milk to that particular factory, and if he does not improve he is doing a greater injury to the factory and causing a much greater loss than does the man who adds water to his milk. It might not be out of place to mention a few of the conditions found at the farms visited during the past season.

Sample No. 8, "gassy," and very bad flavor. On visiting this farm I found the cans and pails bright and clean, the milk stand on which the milk was kept over night was built close to the hog pen—so close that the whey could be emptied into a barrel inside the pen; other buildings quite close; circulation of air very poor. Milk and stand were removed to cleaner surroundings, and no further trouble was found with the milk.

Sample No. 6, "floater." Cans and pails bright and clean; surroundings where the milk was kept were very bad; the milk stand was quite close to a hen house. The milk was removed, and came to the factory in good condition.

Sample No. 3, very bad "bitter flavor." This was a patron with very little milk, the hardest to deal with. His can was very rusty; other things were in first-class condition. Patrons of this kind use the argument that they have such a small quantity of milk that they cannot afford to have a new can. In this case I got the patron to cool his milk in the pails, and not put it in the can, until the drawer came along. This improved the milk considerably.

I might mention a great many other cases, but I think that these are sufficient to prove that by the use of the curd test, we are able to trace all bad flavors to their source. I might just say that in nearly every case the farmers were much interested in the work, and willing to do anything reasonable to improve the quality of their milk.

Now, I have yet to point out some of the benefits to be derived from the use of the curd test. In the second place, I will try to show where the test might be made more useful as a means of locating undesirable conditions in milk. In the past, instructors have carried an outfit for making from 12 to 18 tests; by this means they are only able to make a test of a very small percentage of the milk delivered at each factory. This I considered one of the greatest weaknesses in our present system of instruction, as in a great many cases the milk as it is received appears to have a very objectionable flavor, while in the manufacture of the cheese this flavor passes off, leaving no bad

results. These are the samples which we are liable to select for our tests, while milk in which we are not able to detect any objectionable flavors as it is being received, turns out very badly. This is particularly true of the bitter milk, which can rarely be detected, unless there is quite a high per cent. of acid present. These facts make the selection of milk very difficult under present conditions, whereas if we had some means of making tests of each and every can of milk received we would be able to acquaint ourselves with the exact quality of milk produced by each patron, and avoid all chances of doing any injustice to the patron by rejecting only milk which should not be received; as you can readily see that by simply going by the sense of taste and smell you are liable to do a serious injustice to the patrons by sending home what you should receive and receiving what you should have sent home. How are we going to overcome this difficulty? The only way that I can see at the present is for the factory men to provide themselves with an outfit for making those tests. When the Babcock test was first introduced it was carried around by the instructors, but the factory men soon came to see that it was of too much importance to them to be without it, so that to-day you will find one in almost every factory in Western Ontario. Now to my mind the curd test is of much more importance to the cheesemaker of to-day than is the Babcock test, as it has to do more directly with the quality of our cheese, which is the all important point. If we are going to hold our place on the British market as producers of the finest cheese, we must pay more attention to our raw material.

In conclusion, let me urge upon all factory owners the importance of providing themselves with an outfit large enough to make tests of the milk of at least half the number of their patrons. If they will do this and use it properly I will venture to say that we will be able to make more improvements in the quality of the milk supply this year than we have made in any previous year.

HOW TO MAKE AND USE A PURE CULTURE IN CHEESE MAKING.

By J. H. Scott, Culloden.

The making and using of pure cultures in connection with cheese making has come to be one of the most important factors in the business, and the more we study the art of cheese making the more important do we find the culture problem.

It is only within the last few years, that pure cultures have come into practical use in the cheese factories, and it is gratifying to know that the makers of to-day are realizing the importance of a good culture.

Out of twenty-five factories in the Ingersoll District twenty-three were using pasteurized cultures during the season of 1904. But a pasteurized culture is not necessarily a pure culture. Unless the utmost care is taken in preparing and keeping a culture it will become bad flavored and unfit for use even if the milk is pasteurized.

In making and keeping a culture for general use in a cheese factory, I prefer using the ordinary shotgun cans (best size about 8 inches wide and 24 inches deep, holding about 50 pounds) to the large milk can, because the milk is easier heated and cooled when in small quantities, and there will not be so much waste in case the culture is not all required for the day's milk.

A good device for pasteurizing and cooling milk for cultures, and one in general use in a good many factories, is to have a box made of wood, long enough to hold as many cans as will be required at any time, say one can for each vat used in cold weather. The box should be a little deeper inside than the height of the cans, and have an overflow pipe in the end a little lower than the top of the cans, and should also have a drain tap near the bottom. A steam pipe should go down in the end and along the bottom the full length of the box, the bottom pipe having holes drilled every few inches, or better still have a noiseless heater attached to it. The cold water pipe comes in at the opposite end from the overflow pipe, and should go down quite close to the bottom of the box, allowing the cold water to be delivered at the bottom and the warm water to overflow at the top. The box is also provided with a cover to assist in keeping the milk at the proper temperature. With a box such as described the heating and the cooling can be done with very little labor, and I have found that where the making of cultures involves a lot of work it is often done in a very haphazard manner.

The cans should be well made, with seams well soldered and provided with snug fitting lids. It is a good idea to paint the outside of the cans to prevent rusting. A small wire handled dipper should also be provided and should be used for nothing else.

The cans and dipper should be well washed and thoroughly scalded or steamed every day before using.

The milk to be used for cultures should be selected, and nothing but milk known to be clean and of good flavor should be used. It should be heated by placing the cans in the box, then filling up with water and heating the water until the milk reaches a temperature of 180 or 185 degrees, stirring occasionally while heating to prevent scorching. It may then be cooled down. After starting to cool, the cooling should be done as rapidly as possible to a temperature of 60 to 70 degrees, according to the length of time before it will be required for use, the amount of the mother culture to be added and the temperature of the surrounding atmosphere. The water surrounding the cans when the cooling is completed should be left in the box, as it will greatly help in keeping the milk at the temperature desired for ripening. The mother culture should then be added. The mother-culture to be used should be a pure, clean, lactic acid culture, started either from a good commercial brand, of which there are a number on the market, or by taking some clean sweet milk and putting it into a sterilized vessel and holding at a temperature of about 80 degrees until it thickens, when it will be ready for use. The amount of mother culture to be used depends very largely on the length of time from making till using, and the temperature at which it is held. No more should be used than will give the desired acidity. Here is where the acidimeter comes in and plays a very important part. In fact, I find it very difficult to carry along a good culture without the judicious use of the acidimeter. By carefully testing the acidity of the culture every day, the maker will soon know how much of the mother culture to add to produce the amount of acid required when ready for use.

Now, the proper acidity for a culture to have when ready for use has been discussed a great deal, and opinions vary considerably. Some good authorities claim that the lactic acid germ is most vigorous when the culture shows from 5 to 6 per cent. acidity. During the winter of 1904 we conducted a good many experiments along this line in the Western Dairy School, carrying along ten cultures for a period of two months, in order to test the point of acidity at which the culture was most vigorous. We took exact quantities of pasteurized skim milk and added to each about two per cent., exactly the

same quantity in each of the cultures at different points of acidity, keeping the milk at a temperature of from 85 to 90 degrees for a period of five or six hours, noting the development of acid from time to time, and in every case, with but one exception, we found that up to .8 or .85 per cent. the higher the acidity of the culture, the more rapid was the development of acid, and, we thought, the better the flavor. But going over .85 the tendency was to develop more slowly, the flavor was not so good, and the texture more lumpy. But I would not recommend a maker to carry his culture at so high an acidity as .85 per cent., but would say that from .6 to .7 per cent. would be a good safe point to aim at. I might say that it is quite possible to carry a culture at such a high acidity that it will not thicken at all, and the flavor will become rank. I believe that there have been a good many cultures spoiled and thrown away by using too much of the mother culture, and I also believe that a culture thus spoiled may be corrected and brought back to its original good flavor and texture and carried on indefinitely by using the proper amount of mother culture, accompanied by cleanliness and thorough pasteurization.

When opening a can for use, about an inch should be skimmed off the top and thrown away, as the top will have been more or less contaminated by the surroundings. The remainder should then be broken up, either by stirring or pouring, and should present a rich, creamy appearance, free from lumps. The quantity to be kept for mother culture should now be taken out and put in a vessel used specially for that purpose. An ordinary pint or quart fruit jar being an excellent vessel for keeping it in. It should be well washed and sterilized by putting it in a pail of water and boiling the water. The proper time to add the culture to the vat depends a great deal on the acidity of the milk as it comes in. Some makers practice putting it in before any milk is taken in. This I think is a little risky, and I do not think any should be put in until a test has been made either with the rennet test or acidimeter. In cold weather the milk should be heated to 60 or 65 degrees before the culture is put in, as putting the culture into the milk down about 40 degrees paralyzes the acid germ to a certain extent and retards the action on the milk.

The quantity of culture to use also depends on the acidity of the milk delivered. I do not think it is safe at any time of the year to use more than 1 per cent., and then only in cold weather when the milk is coming in very sweet.

In ordinary summer weather from ¼ to ½ per cent. will be found sufficient. Some makers practisé putting some culture in every vat even if it is already over-ripe, claiming that it has a tendency to check the development of acid, but I cannot see the logic of the argument, and I think it is unsafe to add culture to a vat that is over ripe unless we know that there is some gassy or tainted milk in the vat; in that case a little culture would be beneficial and I would like to sound a note of warning here on this culture question. I saw a good many cheese last season that were of a short, acidity texture. In some cases the makers were using 1 1-2 per cent. and even more of pasteurized culture, and were making their cheese otherwise about as well as they could be made, cooking their curds well, dipping sweet and stirring them dry, but still when their cheese were about a week old they would begin to show acid, and in almost every case when they reduced the quantity of culture I would find a smoother and more meaty texture.

In conclusion let me say that I believe every cheesemaker will have to study his own culture, and study carefully under the conditions met with in his own factory, and the action of his culture on the milk delivered to him, what is the most vigorous point of acidity, what is the best temperature for

ripening it, and what is the proper amount to add for propagation from day to day before he will be able to get the best results in his work. And I can only repeat the old story, that the judicious use of a pure culture is of great benefit to a cheesemaker, while the abuse of it only sinks him deeper in the mire.

THE USE OF THE ACIDIMETER.

By Frank Herns, Strathroy, Ont.

In presenting this paper it may be necessary to repeat a few points given in a similar paper at this convention last year, but we believe the subject to be of sufficient importance for renewed discussion, and that is the object sought.

In the paper referred to (that of last year) it was very clearly pointed out to the manufacturers that alkaline solution and indicators should be of proper strength, so that the acidimeter would not become a source of evil instead of a benefit to the cheesemaker. Unfortunately, a large amount of solution sent out during the early part of the season proved to be of wrong strength, with the result that some trouble was caused, and especially to those makers who were least acquainted with the test. However, this was soon detected, and remedied as rapidly as possible. We have now in each section or group at least one druggist who has been instructed in the manufacture of solution and indicator of proper strength, and it is hoped no further trouble will occur from mistakes of this kind. The solution must be a 1.11 decinormal. the indicator a saturated solution of phenolthpholein in alcohol, and both kept air-tight. I think it is a mistake for makers to use a home-made solution, unless they have some way of knowing they are correct; for if not correct, the acidimeter becomes a source of positive injury to the trade instead of a help.

Setting. In the setting of vats of milk the acidity must be varied to suit different factories. This setting point will vary from .17 to .23 per cent. The amount and quality of culture used must be taken into account, so that the rennet test in careful hands will be as accurate for setting as the acidimeter. But when the acidity required for setting has been found in each factory, then the acid test is quicker, and the temperature does not need to be considered. When rain water is present in milk, the vats must be set with less show of acidity than under normal conditions, as we get a proportion of water in the amount taken for the test, which will show less acidity than the milk really contains, and rain water will affect the rennet test also.

Cooking. During the process of cooking the curds is where the acidimeter has given the cheesemaker the greatest assistance in securing uniformity. We get the acidity as soon as the curd is cut (taking 10 c.c. of whey surrounding the curd for test), which should test about two-thirds the acidity of the milk at setting. If we find the acidity not sufficient, and coming slowly, we simply handle the curd very carefully and slowly for a longer time before turning on the steam, and cook very slowly until acid begins to form; and although the curd may remain in the whey a longer time than is desired, yet by raising the temperature in proportion to the rise in acidity of the whey, we will not have the harsh dry curd when dipped that we would have if the temperature had been raised in usual time and the curd firmed too much before fermentation had set in. We aim to retain moisture in the

curd up to such time as we can get the acid started and then firm it. On the other hand, if acid is developing too fast we cut finer, cook faster, stir more, draw down whey, and do everything possible to get curd firm and free from moisture before acid gets too much start, the object in both cases being to get a uniformly firm curd before sufficient acid has developed for dipping.

Then, under normal conditions, the acidimeter will help us to cook a curd in such a way that it will neither be harsh or corky, nor soft and mushy, but come out at dipping in a condition of such firmness that it is easily relieved of its surplus moisture, and still go on and develop a sufficient amount of acid for the remainder of the process.

Some have made the mistake of setting with too much acid, and then cooking slowly, and having curds with sufficient acid for dipping as soon as cooked up. The milk should be set sweet enough that curds will have plenty of time to firm, although cooked slowly and handled carefully. The proper cooking of curds is one of the main points in securing a fine, silky and smooth texture in a cheese. The acidimeter will also certainly help us to more quickly detect the rapid development of acidity in case of bitter milk, and assist us in handling the curd to better advantage when this taint is present. The same may be said of gassy and over ripe milk.

Dipping. At dipping, the acidimeter will help the maker, although mistakes can be made with it at this point as well as with the hot iron. If the milk has been set at such an acidity that in two and three-quarters to three hours from time of setting the whey surrounding the curd shows an acidity of about .01 per cent. less than the milk at setting, the curd should be ready to dip. This will also depend on the length of time taken in dipping and the amount of whey on the curd at this stage and the kind of curd.

It should have such an acidity that when the curd is dipped, stirred out dry, and piled up, the whey draining from the curd at this stage will show .3 per cent. and will take about two hours to gain an acidity of .75 to .8 per cent., which is about the proper acid for milling.

Mistakes have been made here by some makers due somewhat to their system of making. They dip with so much acidity in whey that when the curd is stirred over once or twice the moisture draining from it would show an acidity of .3 to .35 per cent. They would pile it up in this condition, being loaded with moisture, and in two hours it would show an acidity of .9 to 1 per cent. This condition accounts for a great many cheese of poor texture, and in some cases open body, for such curds usually require very much more time after milling before salting than do curds that have been dipped early enough to allow of their being stirred out dry before being piled for cutting, and still only show an acidity of .3 per cent. and about .75 to .8 per cent. in two hours.

The moist curd may require an acidity of 1.35 to 1.4 per cent. at salting in order to have a close cheese, while the curd that was stirred out dry would be a close cheese with an acidity of 1 to 1.15 per cent. at salting, and salt earlier. A large amount of our open, weak-bodied cheese do not come so much from lack of acid, but from mushy cooking, and the retaining of too much moisture all through the process. Again, when too much moisture has been left and a high acidity has been gained at salting in order to get closeness and body, such cheese will appear fine for a few days, then gradually fade in color and get short in grain and salvy in texture. The use of too much starter will give the same result.

Milling. For milling, the acid test will help the maker to get uniformity, especially in cases of slow working, gassy and over-ripe milk and curds from bitter milk. We know that delaying the milling process too long

with some curds tends to produce rough texture, yet on the other hand if we mill some curds too soon the tendency is towards open, weak body. With this test a uniform acidity at milling can be secured.

Salting. We also get uniformity at salting, which is an important point. The salting does not check the acidity, except so far as the lime in the salt neutralizes some of the acid. This passes off, and the acid goes on developing for some time. This has been proven several times. Curds have been salted immediately after milling with an acidity of .9 per cent., then piled up, and left for two hours. At the end of that time the acidity of the whey draining from the curd was 1.2 per cent. The cheese were firm, close and meaty, the only fault being the color was somewhat streaked, due to the length of time it was piled without being stirred.

Culture. For making and keeping a pure culture this test is almost a necessity, and I am convinced from my own experience and that of numbers of others, that the acidimeter, properly understood and properly used, is one of the most valuable helps to the maker in the manufacture of a fine, uniform quality of cheese.

Mr. Barr: I want to say a few words in regard to Mr. McKay's paper. I feel these instructors were very much handicapped as to the use of the curd tests, as you will all agree that visiting the patrons is the main point in the work. I do not know whether any of you have tried this or not, but my experience has been that you cannot go to a farmer and say: "Your milk was not right this morning," and he will believe you. As a rule they do not know the instructor, he is a perfect stranger, and if you go and say the milk was not very good, that it was a little gassy, he will want you to prove it. These men on the farm are not acquainted with the conditions of the milk as we are, and it is very difficult to convince them that the milk is wrong, and the only way is to visit the farm. And before I went to the farm I would have a curd test of that milk and have a piece of that curd with me; and then I would prove to them that their milk sent to the factory that morning made such and such a kind of curd. We can only take a few samples, and I think in nine cases out of ten worse samples pass through our hands than we get; and if you had asked me five years ago whether I could tell if all the milk delivered at the factory was good or bad I would have said I could. I believe I have got more sense than I had five years ago, and I would not say that to-day; because I have seen milk go past my nose and past the cheesemaker's nose that we thought was all right, that made one of the most gassy and worst-flavored curds I ever saw, and that convinced me that I did not know very much about smell in milk. We must make a test of every patron's milk, and if there are only two wrong we will know it, and if there are twenty wrong we will know it, and then we can deal with them. To-day we do not know whether all the milk is wrong, or how much of it is wrong. I wish the factorymen and the makers would take up this question this year, because I know we have not visited the farms as much as we ought to. I was in hopes that we would have a sample outfit here at the convention. I thought that probably we would get one of our dairy supply houses to put up such an outfit on exhibition here. I hope that you will think it over, and that some of you will make provision this coming season for taking samples from at least half of the patrons.

We had a case last summer where the cheese was thrown out because they had a bitter or gassy flavor, and we were asked to go there and stop that. But some people seem to think that an instructor can go to a factory and that as soon as he gets there all this will stop. At one factory we went to where they had this condition, we took 45 samples of the milk, and we dis-

covered two samples of goosey or bitter milk, and we visited these two farms. At one of these farms there was one of the best herds of cows and the cleanest stables I have ever seen. I told the farmer what was wrong, and he said: "If my milk is not right I will have to stop sending; I cannot do any more than I have been doing." His stable was clean and nice and bright, and he was taking his milk 30 rods to his house and cooling it in a tank of water. He was cooling his morning's milk as well, and he had rightly said: " I cannot do any more." He asked me to look at his can and see whether it was all right or not. When I looked at it I found that the bottom was rusty, and I said: "Can't you put your milk in a clean, new can?" He said: "Yes, I have one here I am not using." I asked him to do that, and everything was soon all right. We went across to another man, and we found him straining his milk through a wire sieve into the can, and leaving it, and that is about all he was doing. We got him to take proper care of it, and everything was all right at the factory. Now, you will find that thirty or forty of the patrons in some factories will send milk of that flavor, and if you can visit the farmers you could induce them to take proper care and avoid all these difficulties. The first time I went to this factory I could not get the flavor at all, because it was a cold night; it was the first frost we had. With the 45 samples, I was not able to develop more than .13 and .14 per cent. of the acid on the whey, and I came to the conclusion that it was because I didn't have enough acid developed on the curd. So the next day I added some culture to all the curd tests, and left them until nearly 11 o'clock before setting; and at 3 o'clock I had two samples of as bitter a curd as you ever saw. To get this bitter flavor you have to have at least .19 per cent. acid developed in the curd tests. We could do a lot of valuable work if we have the assistance of the factorymen and the makers. (Applause).

Mr. Johnson: You think every cheesemaker should have an apparatus for making the curd tests?

Mr. Barr: Yes, I think in a few years every factory will have that apparatus.

Mr. Johnson: You attribute the trouble to bad cans?

Mr. Barr: Yes, I do. Wherever we have found this bitter flavor it has been caused by dirty or rusty cans. I do not believe it is anything else but filth. It may grow on trees in the first place, but I believe it grows in the cans very rapidly after. I believe you can get the whey so sour that it will kill this germ, and some of the cheesemakers are doing that, but when you get other flavors on the cheese, that is just as bad.

Prof. Harrison: When you find bitter flavors in the factory do you find other flavors as well?

Mr. Barr: Yes.

Prof. Harrison: If you add acid to the curd test you don't get rid of this?

Mr. Barr: No, you will find who is sending bad milk. In the case where I had added the culture to the samples of milk, I got two or three other samples very bad, one with a cowy flavor; and I went to the farm, and found his cans sitting near the manure. He said he would take them away, but I found afterwards he did not. He said it was not worth while moving his stand for the amount of milk he was sending. There is nothing in the trade that makes me more afraid than that bitter flavor, and if we are going to get rid of it we must insist on having good cans, and that they are kept thoroughly clean.

A Member: Is it possible to have a bitter flavor in a can to-day and perhaps none to-morrow?

Mr. Barr: I think it would depend somewhat on the way they are washed; but I believe it is.

A Member: By making experiments at the factory we came to that conclusion.

Prof. Harrison: With regard to this bitter flavor, in the first place you are dealing with life, and you are dealing with a yeast. Yeasts develop from bacteria. They are a bigger organism and bigger plants, and they grow just as quickly, if not more quickly, than bacteria, and there is this very great difference between the two. The majority of injurious bacteria that we meet with in the dairy are restrained from growing by the development of the lactic acid germ, which we may term the beneficial germs in the milk or cream. Yeasts, on the other hand, are flavored to a certain extent by this acid. Mr. Barr has just told you that before getting the flavor he developed acid. The reason of that is, that these yeasts are able to grow very freely in a weak solution of acid; up to 1 per cent. of acid they will grow freely. That is significant to the cheesemaker, and the reason I ask these questions is because many of these other injurious bacteria—for instance, those that produce goosey flavors,—are restrained from growing by the development of acid, so if he was after that particular class of injurious bacteria, by adding acid he would not detect them but would get yeasts. So when you have the two evils in the factory, it would be necessary to take two samples.

I see in the last number of the "Dairyman," that Dr. Connell says I have stated that these yeast germs come only from the trees. That is a mistake. They have not read properly what I have gone to considerable trouble to prove. One summer I spent my whole time and my assistant spent part of his time investigating this trouble. We were five months at it. One of the things we did was to examine the washings of the milk cans. I put the can washings in sterilized water, and brought it back to the laboratory, and I found that in every one of these samples, except in the case of one sample taken from the farm, a man who lived next door to the factory, and he did not use his can to take back his whey in, but in every other case we found that organism present. I say the germ of yeast organism comes originally from trees, because that is its place of growth. Just the same as these gassy bacteria are found in the manure, that is where they grow; that is where we find them in the largest numbers. But originally these yeast organisms got into the cans, and they find conditions for their growth, and if the patrons do not wash their cans properly, then that organism remains there and increases.

No matter with what care you wash these cans, there may be hot days in the summer, and a certain wind, and you may get this organism, and if every patron sterilized his can with steam there might yet be a case where you would come across this flavor. If the wind was blowing in a certain direction, that would favor these yeast germs being blown into the can from the trees. I am fully cognizant of the fact that the trouble is kept going by improper washing of the cans. In that same bulletin I have shown that the ordinary washing that the patron makes of his cans with warm water, and then pouring in hot water, that by the time it gets down to the bottom of the can it is cooled, and will not kill the organisms.

Mr. Barr: I am really glad I made that statement about Prof. Harrison. I did not mean to say anything wrong. I did say that this germ came originally from the trees, but it was carried on by the dirty cans afterwards. If I can only say something about some other party that will cause

him to get up and make a speech of as much importance as Prof. Harrison's I am very willing to do it.

The CHAIRMAN: This is a live question. You all know the trouble you have with bitter cheese, and you can get after the instructors, or Mr. Barr, or Prof. Harrison, or anybody else on this question. Prof. Harrison made this experiment in my own neighborhood, and I fully appreciate the effort he put forth at the time in tracing back the origin of the trouble.

Mr. WADDELL: Have you discovered any method of skimming off the top and discarding it, and then using the whole milk for making a culture so that you will not waste so much cream?

Mr. SCOTT: In pasteurized milk you do not find so much of the cream on the top. Of course there will be a little loss, but it is a very small amount. In the majority of factories in summer time they would not use more than 100 lbs. of milk for a starter, and the loss would be quite insignificant.

Prof. MCKAY: I would like to add a few remarks to the excellent paper read by Mr. Scott on adding pure culture. I think his description for pasteurizing milk might have been benefited by adding a cover to the can, and having a hook from the ceiling so that you can get the handle of the can in the hook and do away with the dipper by swinging the can around in the water, and there would be no danger of scalding the milk. It is about impossible to tell good milk from the sense of smell and taste. That has been demonstrated a number of times. I had a student who wanted to select extra good milk to make butter, for a national convention. He went to the trouble of getting milk from a city supply man, sterilized portions of the milk, took it to the creamery and permitted it to sour, and I think it had the most wretched flavor I ever met with. In preparing a starter I believe you would get better results by taking a number of samples in small jars, and permitting that milk to sour. You usually find where the lactic acid predominates that the curd when it coagulates will be solid, free from pin holes and will have a pleasant acid flavor. If you have a number of samples you can select the starter in that way, and then you can add that to the pasteurized milk, and carry the work along from time to time.

Prof. HARRISON: Amongst the samples sent to the laboratory were two or three starters from cheese factories, with the request that we make an examination. They had not achieved good results from them, because they contained organisms which produced gas. We found on inquiry that one of these was made by taking the pure milk. It is true that the number of gas-producing germs was not large, but still they were present. If you leave the starter in a place so that flies get at it, you are very apt to have gas-producing germs. Flies get on the manure and live there, and then go into the factory and into the starter; then you will have gas germs. Cheese makers should remember that many of these gas-producing germs are also acid-producing germs. We sent out pure cultures, and our cultures are pure because they contain only one organism, and if you have a culture that is defective put it away and use one that you know is bacteriologically pure.

A MEMBER: How long do you consider you can carry a pure culture on under normal conditions in a cheese factory?

Prof. HARRISON: It depends on the care which is exercised. I know of a culture that has been carried for over a year in a cheese factory. The culture referred to came from my laboratory, and it contains, as far as I can see, the same organism at the present time. I would have different advice to suggest for a creamery.

A MEMBER: I would like to know whether the result is better with water or without water.

Mr. Scott: We found in our experiment last winter that we had just as good a starter without water. In fact we came to the conclusion it was not necessary to use water at all. The reason for putting in water is in order that it will break up nicer; and we have found that if you have the right amount of acid and the temperature is right, that water is not required. If you put in water you must put it in before pasteurizing.

Mr. Barr: If you add one-third water, and the acid of the starter is .7 per cent., you have really a great deal more than seven-tenths of acid on the milk in that starter; and I believe you are more apt to get an over-ripe starter in adding water than you are if you do not add water. Many times also, the makers will put in water without pasteurizing, and we have come to the conclusion to recommend making a starter without water, and I believe you will have a nicer starter and be more apt to have a mild flavored starter without water than you will with it. I think the majority of our makers are using a pasteurized starter without any water added.

A Member: What is the best temperature to keep it at?

Mr. Barr: I think the danger line is 70 degrees, if you keep it at a temperature of over 70 you are apt to develop bad flavors. Some of the cultures will not work very well at 63 or 64 while others will thicken down at 64 and 65, so I think between 60 and 68 is a good place to keep your culture, and I would at all times rather use a little more of the mother culture and keep the temperature down than to raise the temperature and add the same amount of mother culture. The temperature has a great deal to do with the flavor, and anything over 68 I think apt to develop a bad flavor.

A Member: After the starter has gone off, is it possible to bring it back?

Mr. Scott: If the culture became rank-flavored by using too much of the mother-culture, I believe you can bring it back sometimes—I would not say always. I believe it can be remedied by coming back to the normal amount of culture.

Mr. Barr: We had a starter last winter which developed a nasty flavor by adding too much culture to it day after day until we got it to nearly one per cent. of acid; then we reduced the quantity of mother-culture, and inside of a week you have scored that culture quite as high as it was before. We tried if we could get back to as good a flavor inside of a week by using less and less of it until we got back to about six-tenths of acid, and then we had as nice a flavored culture as any of the others.

Mr. Ballantyne: Would you not think that a dangerous doctrine?

Mr. Barr: I think it is dangerous.

Mr. Bell: I have had some experience of a starter becoming a little rank from alcoholic fermentation, and by reducing the mother-starter I brought it back to the condition it was in formerly, and that was a mild starter.

Prof. Harrison: I think the explanation of this experiment is that the lactic acid bacillus is the first product which this organism makes. But it is by no means the only one, and as the culture grows, and the number of bacteria in it increases, other substances are formed, and amongst these substances are higher acids than lactic acids—higher organic acids which are formed by the action of this bacteria. Then, besides the acids, we have products formed which have an odor, so that you can usually smell a large number of the products of that organism. When you use only a little it will produce this lactic acid; it is only when it is stale that these other things developed; you might possibly get, not a pure culture, but a mixed one that might bring bad results.

PEPSIN VS. RENNET FOR COAGULATING MILK IN CHEESE-MAKING.

By Prof. H. H. Dean, O.A.C., Guelph.

During five months of the year, at the Dairy Department of the College, we aim to conduct experiments which will be of benefit to the dairy industry. The object of these experiments is to ascertain the truth. The truth should either give pleasure to a man in the dairy business, or enable him to improve the quality of his product, or reduce the expense of manufacture. Very few of them can afford to work for truth for the mere pleasure it gives. That can only be done by those who have plenty of wealth. The particular experiments of which I shall speak at the present time relate to some work which we did during the past year, to find out whether pepsin would give us a better quality of cheese when used for coagulating milk instead of using rennet.

There are a large number of organisms which have the power to coagulate or curdle milk. Experiments have been made by some, and they claim to have secured a much improved quality of cheese by using pepsin rather than rennet; and as it is our business to try and find out if there is anything better known than we know at the present time, we at once took this work up. My time is very limited, and I can only give you a bare outline of the facts as we have ascertained them with regard to pepsin, during the past year. Rennet, as bacteriologists will tell you, is an unorganized ferment or an enzyme produced by animals. Usually it is taken from the stomach of the calf. There are other organisms which have similar effect, or do similar work of rennet. Ptyalin changes starch to sugar. Trypsin changes starch to sugar, and acts on the proteids, makes them more digestible, and changes them into peptones.

There are certain plants which also have similar properties, and certain bacteria also have the power to coagulate milk, producing sweet curdle to milk.

A few years ago we used to hear a great deal about the difficulty they had in factories by reason of the milk curdling when sweet. Now rennet, pepsin, and acids all have the property of coagulating milk, changing the milk into a soluble or insoluble compound, the soluble passing off in the whey, the insoluble remaining behind, forming the chief part of what we call the curd.

It is claimed that pepsin will make a better quality of cheese if it is used in preference to rennet, and from experiments which we made during the past year we find the following facts.

First, that when rennet is used in the milk it seemed to have this effect, so far as the development of acid is concerned, that the acid developed much more rapidly, and to a greater extent in the curd at the time of milling and salting, than where pepsin was used. We only made altogether eight experiments, and that is hardly enough to be able to say anything positively and conclusively on this point, and we expect to repeat the experiments during the coming year.

We found that from the 2,200 lbs. of milk, where we used rennet as the coagulating agent, that 220 lbs. of cheese were made, and that pepsin used in the same quantity of milk produced 218¼ lbs., or in round numbers about ¾ lb. less of cheese per 1,000 lbs. of milk, using pepsin instead of rennet.

Second, the cheese made with rennet lost 4.9 per cent. in weight in one month's curing or ripening, and the cheese made by using pepsin lost 5.3 per cent. in one month.

As to the quality of the cheese, Mr. Steinhoff visited our dairy in the month of December and scored these cheese, along with a number of others, and he gave to the cheese made by using rennet an average score of 34.9 points out of 40 for flavor and a total of 89.2 points; and to the cheese where the pepsin was used he gave a score of 35.5 for flavor and a total of 89.5 points.

Our conclusions as to the result of our experiments are:

First, that pepsin had given a little better quality of cheese.

Second, the yield of cheese was one-half lb. less per 1,000 lbs. of milk, using the pepsin instead of rennet.

Third, the loss in weight in curing was, in the pepsin, one-half per cent. greater than in the case of the rennet.

Fourth, owing to the difficulty in the preparation of the pepsin, and the danger of its spoiling before it is used, we are not prepared at the present time to recommend pepsin in preference to rennet.

Further experiments will be conducted before we will be able to say conclusively whether or not it will pay us to use pepsin in preference to rennet, but up to the present time we have not found sufficient advantage in the use of pepsin as compared with rennet to recommend its general use. These things we can find out by working at the problem long enough, and by taking sufficient care to do it thoroughly.

As I said before, during five months of the year we tried to find out some new truths. Sometimes it is the same old thing rehashed, but to a certain extent that is necessary. New ideas and new suggestions must always be considered very carefully before we are prepared to make any radical change in our methods.

You will remember that a few years ago we recommended the use of the acidimeter in preference to the hot iron test, and we were criticised for what we said at that time; but I was satisfied that we were on the right track, and that it was only a matter of time when the rank and file of cheese-makers would be prepared to accept our views. And I say to-day that while we are not prepared to recommend pepsin in preference to rennet, our experiments indicate that we can get a slightly better quality of cheese.

Mr. STEINHOFF: These cheese were all cured at the ordinary temperature?

Prof. DEAN: Yes, they were all cured in the ordinary curing-room at a temperature of about 65 or 68 degrees.

A MEMBER: How does the cost compare?

Prof. DEAN: Up to the present time we have not had any figures as to the cost of the pepsin, but I fancy it would be more expensive than rennet.

Mr. STEINHOFF: Are you keeping these cheese?

Prof. DEAN: We have got one set only.

Prof. HARRISON: Was the pepsin in the flake form?

Prof. DEAN: Yes.

The CHAIRMAN: I will call upon Mr. R. M. Ballantyne to give the judges' report of the prize cheese.

PRIZE WINNERS IN CHEESE.

By R. M. Ballantyne, Montreal, Quebec.

I will read to you the names of the prize winners.

September White.

1st Prize.—O. Schweitzer, Brocksden.
2nd Prize.—C. J. Donnelly, Union.
3rd Prize.—W. S. Stocks, Britton.
4th Prize.—A. F. Clark, Poole

September Colored.

1st Prize.—C. J. Donnelly, Union.
2nd Prize.—W. A. Bell, Pine River.
3rd Prize.—C. S. Fierheller, Woodstock.
4th Prize.—C. C. Travis, Eden.

October White.

1st Prize.—O. Schweitzer, Brocksden.
2nd Prize.—Frank Travis, Courtland.
3rd Prize.—W. P. Stacey, Fullarton.
4th Prize.—O. B. Hartley, Bookton.

October Colored

1st Prize.—C .C. Travis, Eden.
2nd Prize.—Robt. Myrick, Springfield
3rd Prize.—J. H. Mannell, Tillsonburg.
4th Prize.—A. Doherty, Harley.

In scoring these cheese I did what I never did before. I gave Mr. Schweitzer one hundred points. I tested again and again before I decided to do it. The flavor was perfect, the texture perfect, the color perfect. They were as close as a candle, and well finished, and there was no reason on earth why the cheese should not be scored one hundred points, and I scored it one hundred points, a perfect cheese. (Loud applause.)

There is practically no difference in his October white cheese, except some little defect in texture. That cheese scored ninety-nine, so that it came very near the top.

As a general thing the cheese on exhibition are characteristic of the cheese of this section; they are well finished and they are a handsome lot of cheese. The cheese of the district have that characteristic anyway; but they have a weakness that also belongs to this section, and that is defective flavor, for I believe that is a defect of Western cheese. They are more defective in flavor than cheese of any other section of Ontario, and a remarkably large percentage of the cheese on exhibition show defect in flavor. Outside of that there is really nothing to comment upon. There are very few of them that are over stiff in texture, there are one or two of them weak in body, but the majority of the cheese are well made, and of about the right texture, the right size and shape and finish and color, a close boring cheese,

and generally such a cheese as the trade requires, except the flavors are not as good as they ought to be. (Applause.)

THE COOL CURING OF CHEESE.

Mr. J. A. Ruddick, Dairy Commissioner, Ottawa, delivered an address on the Cool-Curing of Cheese, a report of which will be found in the record of the proceedings of the Eastern Convention.

INSTRUCTION IN CREAMERIES IN WESTERN ONTARIO.

By G. H. Barr, Chief Instructor, London.

Instruction at the creameries during 1904 was conducted along the same lines as in 1903, two instructors being employed, Mr. C. W. MacDougall, and Mr. J. C. Bell. Mr. Bell resigned to accept a position with Mr. Flavelle Company, Limited, London, Ontario, and Mr. Fred Dean was engaged to fill the position during September and October.

The creameries in operation in 1904 west of Toronto numbered 58, along with these the instructor also visited 5 creameries in the Barrie district, making 63 creameries in all the territory covered.

The arrangement for visiting the creameries was, regular visits of the instructors would be made to creameries paying a fee of $5, those not paying the fee would receive only a short call, once or twice in the season. Only 33 creameries paid the fee. These are scattered over nearly all the territory, causing almost as much travelling as if all the creameries were being visited. The work is entirely too scattered and cannot be done as well as it should be, unless another instructor is placed on the work.

Recognizing that the weakest point in the cream-gathering creameries (and nearly all our creameries are operated on this plan) is the inferior quality of the cream delivered. Our efforts were directed largely towards improving this branch of the industry.

The use of the Babcock tester instead of the oil test churn was strongly recommended, believing that if this change were made a much sweeter cream would be delivered to the creameries. When we commenced visiting the creameries in 1903 only two cream-gathering creameries in Western Ontario were using the Babcock test for testing cream. In 1904 19 creameries were using it, and many more will use it next year. In every case where the change was made, it has proved a success. There are weak points in using the Babcock tester, but there are very many more weak points in using the oil test, and the best is none too good for our creameries.

We have again to enter a protest against separator agents for setting their machines to skim too thin a cream, and not giving the patrons explicit directions to wash the machine thoroughly after each skimming. Separator agents could do our butter industry an immense amount of good by giving the proper instruction to the purchasers of their machines, as in many cases their suggestions seem to be accepted by the patrons more quickly than those made by the instructors.

Also with a view to improving the quality of the cream, the instructors last year made trips around the farms on the cream wagons. We believe this is a good thing to do, and it has improved the quality of the cream on every route visited during the season. The instructors visited during the season 1,123 farms, and while the cream hauler was emptying the cream the instructor would always find something to suggest in regard to caring for the cream or the running of the separator.

At the creameries, many of them are poorly equipped, the proprietors are apparently afraid to invest much money for fear their business will not stay with them. This, I believe, has a bad effect on the butter industry, for if the men in the trade do not have faith in it, how can we expect the patrons to have much enthusiasm.

Our western butter trade will never have the reputation it should, until every creamery uses a pasteurizer and has a proper system of cooling the cream. I firmly believe that the increased value of the butter by pasteurizing and cooling the cream properly would pay for the necessary machinery in two years.

There was less butter held in storage at the creameries in 1904 than ever before, and I am sure that both the manufacturers and patrons see the wisdom of following the system of shipping every week, or every two weeks at the longest. Shipping the butter when it is fresh will very soon raise the reputation of our western butter. The quality of the boxes generally used was better than in 1903.

Many of the creameries were improved as to tidiness and appearance. There is still considerable room for improvement in this respect as well as in the appearance of the buttermakers. I cannot help feeling, from observations and talking with the buttermakers, that many of them have not kept up-to-date in their profession. They have not attended dairy schools or mixed among themselves as much as they should.

I attended only two creamery meetings during the season, Winthrop and Dutton. If more meetings, such as Winthrop, were held, it would be better for the industry. The manager secured Miss Bella Miller, of Guelph, and Miss Hillis, of Toronto, to talk on Farm and Dairy and Domestic Science, also a splendid programme of music was given; the attendance was about 200.

Special buttermakers' conventions were held at Palmerston and at the Dairy School at Guelph, and were well attended by the creamery men. At the Palmerston meeting the speakers were, J. A. Ruddick, Ottawa; Prof. H. H. Dean, of Guelph; Mr. McLean and Mr. McKay, of Underwood; J. A. McFeeters and John McQuaker, of Owen Sound; C. W. McDougall, of Guelph, and I. W. Steinhoff, of Stratford. At the Guelph meeting addresses were given by Profs. Harcourt, Harrison and Dean, and Messrs. Widmeyer, Fergus; Gillespie, Baden: C. W. McDougall, and J. A. McFeeters.

At these meetings, the subjects discussed were, Pasteurization and Cooling of Cream, Cold Storage, Preservatives, Injurious Germs, the Babcock Test, and Instruction Work in the Creameries.

The creamery men express themselves as well pleased with the work of the instructors, and also with attending the special conventions. The following is a detailed statement of the instructors' work in each district and list of creameries visited.

Western Creameries.—J. C. Bell and F. Dean, Instructors

Name of creamery.	No. visits.	Total days at creamery.	No. patrons visited.	Cream gathering or separator.	Babcock or oil test used.	Box or combined churn.	Is pasteurizer used.	Condition of storage.	Estimated expenditure on creamery.
									$
Princeton	4	4	none.	Sep.	Babcock.	Combined.	No.	Not good.	150 00
Beachville	4	4	7	Sep.	Babcock.	Combined.	No.	Poor.	100 00
Corbett	5	3½	78	C. G.	Oil test.	Box.	No.	Good.	.....
Shamrock	6	7½	125	C. G.	Oil test.	Combined.	No.	Poor.	150 00
Winchelsea	5	5	.....	Sep.	Babcock.	Box.	No.	Not good.	.....
Jersey	5	6	49	C. G.	Oil test.	Combined.	No.	Poor.	.....
Whitechurch	5	5	71	C. G.	Oil test.	Combined.	No.	Good.	.....
Bervie	4	6	31	C. G.	Oil test.	Combined.	No.	Not good.	150 00
Holmesville	5	5	62	C. G.	Oil test.	Combined.	No.	Good.	.....
Elgin	4	4	1	Sep.	Babcock.	Box.	No.	Good.	.....
Bluevale	5	5	70	C. G.	Oil test.	Box.	No.	Poor.	.....
Star	5	5	58	C. G.	Oil test.	Box.	No.	Good.	300 00
Springbank	1	1	.....	C. G.	Oil test.	Combined.	Yes.	Good.	.....
Ayton	1	1	.....	C. G.	Oil test.	Combined.	Yes.	Good.	.....
Dunkeld	1	2	.....	C. G.	Oil test.	Box.	No.	Good.	.....
Underwood	5	6	60	C. G.	Babcock.	Box.	No.	Not good.	.....
Paisley	1	1	.....	C. G.	Oil test.	Box.	No.	Poor.	.....
Eskdale	1	1	.....	C. G.	Oil test.	Box.	No.	Poor.	.....
Winthrop	5	6	43	C. G.	Oil test.	Box.	No.	No storage.	.....
Londesboro	5	3½	40	C. G.	Babcock.	Box.	No.	Good.	.....
Falstaff	2	2	.....	Sep.	Babcock.	Box.	No.	Poor.	.....
St. Mary's	3	3	.....	Sep.	Babcock.	Box.	Yes.	Good.	.....
Kerwood	2	2	.....	Sep.	Babcock.	Box.	No.	Not good.	.....
Lambton	5	5	.....	Sep.	Babcock.	Box.	Yes.	Good.	200 00
Strathroy, Sleightholms	2	2	.....	Sep.	Babcock.	Box.	No.	None.	260 00
Maple City	3	3	6	C. G.	Babcock.	Box.	No.	Good.	.....
Medway	2	2	.....	C. G. & Sep.	Babcock.	Box.	Yes.	Not good.	.....
McLeod's	7	7	.....	C. G.	Babcock.	Box.	No.	Poor.	.....
Kenilworth	1	1	.....	C. G.	Oil test.	.....	.....	Good.	.....
Merlin	4	5	59	C. G.	Babcock.	Box.	No.	Not good.	.....
Dutton	1	1	.....	C. G.	Babcock.	Box.	Yes.	Good.	.....
Cedar Springs	.....	.....	.....	C. G.	Babcock.	Box.	No.	Not good.	.....
Farmer's Co-operative	3	3	.....	Sep.	Babcock.	Box.	Yes.	Poor.	.....
	112	116	760	.....	.....	.....	.....	.....	1360 00

Eastern Creameries.—C. W. McDougall, Instructor.

Name of Creamery.	No. visits.	Total days at creamery.	No. patrons visited.	Cream gathering or Separator.	Babcock or oil test used.	Box or combined churn.	Is pasteurizer used?	Condition of storage.	Estimated expenditure on creamery.
									$
Credit Valley	5	5	22	C. G.	Babcock	Box.	No.	Temp. too high	100 00
Sheffield	5	6	15	C. G. & Sep.	Babcock	Combined.	Yes in winter	Good.	150 00
Imperial	5	6	.....	C. G.	Babcock	Combined.	Yes.	Temp. too high	150 00
Nelson	5	8	.....	C. G. & Sep.	Babcock	Combined.	No.	Small, too high	400 00
Vinemount	5	9	5	Sep.	Babcock	Box.	Yes.	Little us'd, good	.....
Palermo	1	1	.....	Sep.	Babcock	Box.	Yes.	Good.	.....
Beeton	1	1	C.G.	C. G.	Babcock	Combined.	No.	Poor, small too high.	200 00
Alliston	5	8	30	C. G.	Babcock	Combined.	No.	None.	175 00
Kinnettles	10	13	20	C. G.	Oil Test	Combined.	Yes.	Good, temp. low	550 00
Whittington	1	1	.....	C. G.	Babcock	Box.	No.	Good.	.....
Dundalk	5	6	24	C. G.	Babcock	Combined.	No.	Good.	.....
Pleasant View	4	7	.....	C. G.	Oil Test	Combined.	No.	Good.	1000 00
Wiarton	4	7	78	C. G.	Oil Test	Combined.	No.	Temp. too high	50 00
Chesley	1	1	.....	C. G.	Oil Test	Box.	No.	Temp. too high	.....
Silver Springs	6	7	8	C. G.	Babcock	Combined.	No.	Good, too wet	400 00
Springbank, Guelph	3	4	.....	C. G.	Babcock	Box.	No.	Good, too small	100 00
Alder Creek	1	2	15	C. G.	Babcock	Combined.	No.	Temp. too high	.....
Nithside	5	6	35	C. G.	Babcock	Combined.	No.	Good.	.....
St. Jacobs	1	1	.....	C. G.	Oil Test	Combined.	No.	Good.	.....
Egremon	4	8	43	C. G.	Oil Test	Comb & Box	No.	Good.	.....
Saugeen Valley	5	7	45	C. G.	Oil Test	Box.	No.	Good.	25 00
Grand Valley	5	5	5	C. G.	Oil Test	Box.	Yes.	Good.	250 00
Fairview	24	4	23	C. G.	Oil Test	Combined.	Yes.	Temp. too high	.....
Russelton	2	4	.....	C. G.	Oil Test	Box.	Yes.	.....	.....
La Fontaine	1	1	.....	Sep.	Babcock	Box.	No.	Good.	.....
Barrie	1	1	.....	C. G.	Babcock	Box.	No.	Good.	.....
Elmvale	1	1	.....	C. G.	Oil Test	Box.	No.	Temp. too high	1000 00
	92	126	263	.....	.....	.....	.....	.....	$3650 00

TOTALS.

Creameries 63 (3 not visited), 13 separator, 44 cream-gathering, and 3 both separator and cream-gathering.

19 cream-gathering creameries are using the Babcock tester.
13 using pasteurizers.
24 using combined churns and worker.
36 using box churns.
31 using cold storage, reported good.
26 using cold storage, reported not good.
3 no cold storage.
Reported expenditure on improvements during season, $5,010.
Farms visited, 1,123.

A MEMBER: I would like to ask Mr. Barr why the Babcock test furnished sweeter cream than the oil test?

Mr. BARR: A good many patrons have got it in their minds that to furnish a good test with the oil test you have got to have sour cream, but you can get a better test with the Babcock test by sending the cream sweet.

A MEMBER: You can get a better test with the oil test by sending it sweet?

Mr. BARR: I believe you can if the creamerymen would sour the cream and ripen it properly at the creamery. I am not much of a butter maker, but I have seen enough of the oil test to know that I would not want any cream of mine tested by the oil test under the general conditions you have in the factories; that is my impression.

A MEMBER: We have tried both, and I fail to see the advantage of the Babcock test.

Mr. BARR: There are nineteen creameries paying with the Babcock test compared to two last year, and I do not know of any of them going back to the old way. I have been told by cream haulers that they could not get the cream from their patrons the morning they skimmed it, when they were using the oil test, because they stated that they would get a better test if they kept it home until it was sour, and that is the general opinion.

A MEMBER: Was that the fault of the oil test or the fault of the butter maker?

Mr. BARR: I think it was the fault of the oil test, because it has been used for thirty years, and they still have that impression. I have seen the oil test made, by our best men in the creameries, and I know they did not put it down the way they read it, and you will not find that with the Babcock test. If the oil test is right, can you tell me why our patrons are delivering their cream at the creameries testing .5 or .6 per cent. of acidity, and the men who are using the Babcock test are getting in the cream with .2 and .3 per cent.?

Mr. MCKAY, Underwood: We have used the Babcock test this last season in preference to the oil test, and we find it has given better satisfaction all along the line. We used the oil test two seasons ago, and we found that a whole lot of patrons kept their cream till it got sour because they got a better test. I found I could not get satisfaction with the oil test. When we started to use the Babcock test I found we got a sweeter cream, because the patrons understood that the sweeter they sent the cream the better test they got, and we got a richer cream. It seems to be easier to get a richer cream with the Babcock test than with the oil test. When we were using the oil test a year ago, it would not average 21 per cent. fat, and now we

have got it up to about 25 per cent., and another season I think we will have our cream up to 30 per cent., and you can make better butter with 30 per cent. cream than with 20 per cent. cream. We are a great deal better satisfied with the Babcock test than we were with the oil test.

VISITING FARMS AND HOW TO TAKE CARE OF THE CREAM AT THE FARM.

By Fred. Dean, Strathroy.

While visiting the farms in the capacity of Instructor during part of the past season, I was very much impressed with the different methods used by patrons in caring for cream, also the different systems of farming.

The conditions met with on some farms were such that one would be led to believe that some of our patrons were not as systematic and tidy in conducting the work of the farm as they might be, while in other cases appearances and results were all that could be desired, especially the part which referred to the curing of the cream, and with which I was more particularly interested in.

When we drove up to a farm house where everything was tidy and apparently in good repair,—good buidings, well kept lawns and good fences,—there we were almost certain to find well cooled, sweet cream. But on farms where appearances were altogether opposite, there we almost invariably found cream in a poor condition. It would be over-ripe, tainted, and left at too high a temperature.

We seldom met with a very cordial reception at farms of the latter description, but where good farming methods were visible on the outside there our visit was a welcome and a pleasant one. Some looked upon us suspiciously at first, but when we made known our errand, and that we were ready to give advice and instruction on any matters pertaining to the dairy line of business, especially in care and feeding of cows, the care of cream, separators and dairy utensils, this suspicion was removed. We often, however, found our time too limited to give the necessary help, as the drawer whom we were with had to travel from 15 to 35 miles per day, carry the cream out from house or barn, weigh or measure it, take a sample, note the figures on his and the patron's books, so that a few hurried remarks were all that could be given in either acknowledging the well-cared-for cream, or offering advice with a few practical instructions where the cream was not what it should be, which was too often the case in majority of districts. Doubtless there is not anything more discouraging about creamery work than that of instructing patrons and getting them to follow instructions. The most of them have got into a rut which seemed to have answered in the past, and it is hard to get them out. The only way to win them is by reasonable argument, seeking to introduce the easiest reforms first.

Cleanliness and temperature are the two main factors in the care of cream, this should be impressed upon the minds of patrons. The essential points to be observed in the care of dairy utensils should be that plenty of warm water be provided to wash everything with which the milk or cream may come in contact, then scald with boiling water, then expose to sun and air in clean surroundings. When the weather is cool, we will usually find cream, although not properly cared for, in fairly sweet condition; but

if the weather is warm, then the same cream, if no attention has been given it in the matter of cooling, will be over-ripe and tainted. We would infer from this that during cool weather nature does the work of cooling, and consequently preserves the cream sweet, which the patron should do by artificially cooling the cream when the weather is warmer. It is quite possible for each patron with very little time and trouble to cool the cream during the warm weather to a temperature below 60 degrees, using cold water, or preferably ice in water surrounding the cream.

The patron who is careless receives as much money per pound for his ill-cared-for cream as the patron does who takes extra care of it. This should not be, and if a difference of price were made between good cream and poor cream it would not be long before the careless ones would adopt different methods so that they could secure the extra price. From the standpoint of theory alone as good butter can be made from cream-gathered cream as from the whole milk delivered and skimmed at the creamery, but it is not done. Not that we always have fancy milk or finely equipped whole milk creameries, but in the case of cream-gathered cream the results depend more upon the patron who does the skimming and takes care of the cream during the most important stages of its existence. Nearly every patron has a different method of feeding, milking, handling the milk and skimming it. There are too many different kinds of vessels used for holding the cream, and too many different methods of caring for it. To overcome this we must get every patron interested, for as long as one or two belonging to each creamery continue to send ill-cared-for cream, just so long will poor butter be made. Every time a patron neglects to feed good food to his cows, to keep his stables and cows clean, neglects to strain and separate his milk as soon as milked, and carry it away from the barn, to thoroughly wash and scald his pails and strainers, separators, etc., which come in contact with the milk or cream, to cool and keep each skimming separate until cooled—so long will he continue to spoil all other cream with which his may be mixed that has not been neglected in these particular points. Numerous patrons do not recognize the fact that cream is a perishable article under the most favorable conditions, and will soon become unfit for food. Then how careful we should be to see that the conditions and surroundings are favorable to make the finest quality.

Cream becomes very easily contaminated from being put in old and rusty pails or cans, or from milk being put through separators not properly washed, and it becomes musty when left in musty cellars or old out-buildings. Cowy flavors appear due to unclean milking and when milk or cream is exposed to unclean stables. We find on the farm three systems of creaming the milk, the first of which is the shallow pan, which cannot be too strongly condemned, as in nearly every case the cream was of a very poor quality. The milk being set in sap buckets, pails, pans, and crocks of every description placed on cellar floors or the shelves in pantries, or in the kitchen where every day work is carried on, the large surface exposed to the air causes the milk more readily to absorb odors and flavors from all directions, and a leathery crust to form which made it impossible to get a proper sample for testing. The skimming was done in from twelve to forty-eight hours, and the cream left by the kitchen stove or outdoors to "get sour" in order to get a good test by the oil test. After it was skimmed it was placed in the same crocks or pails that were not washed, but had previously contained cream. In majority of cases this cream was not stirred or cooled until the drawer called for it, finding it in a thick, sour, foaming mass, unfit to make the lowest grade of dairy butter, yet this is taken and expected to be made into creamery butter.

The second system we find in use is the deep-setting can, the cream from which was in nearly every case of a good quality, owing to the milk being kept in cold water from milking time until ready to skim; and after being skimmed the cream was again put back into cold water. With this system the cream was invariably sweet, smooth, and of good flavor, although some of it was at a low per cent. of fat but often of a higher per cent. than some cream from the hand separators. The worst objection to this system is that ice is seldom used, or water at a low enough temperature to insure a complete separation of the fat, a large loss of fat being found in the skim milk, sometimes as high as 1.5 per cent., and seldom less than .4 per cent. The water surrounding the milk should never be above 40 to 45 degrees in temperature; for in cases where a large loss of fat was found in the skim-milk the milk was kept from 55 to 65 degrees. In a few cases where ice was in the water surrounding the cans, to cool the milk and skim-milk drawn off close to the cream line, a test from 165 to 175 per cent. oil test was found, showing that if the milk is kept cold as rich a cream can be obtained from this system as well as the hand separators. The utensils used for deep setting are in tin cans 8½ inches in diameter and 20 inches deep, either with or without a tap at bottom to draw off the skim-milk. If a tap is not used a cone-shaped dipper is required to skim the cream from the top. A box large enough to hold as many cans as are required to keep the milk from 12 to 24 hours, before skimming, or two boxes may be used, one for morning's milk and cream and the other for evening milk and cream. The boxes can be made of 1½ inch boards grooved at the ends of pieces running lengthwise, and the end pieces fitted into these grooves with a 2-inch board at the bottom, all firmly nailed together, and a hole at one end near the bottom to allow the water to be readily changed. This system should not be used unless ice be provided the year round.

The third process of creaming is the hand separator or centrifugal system. Nearly one-half of the patrons visited were using the hand separator. The machines sometimes get very rough usage, a number of patrons using them as they would their ordinary farm implements, so that after being used two or three years they are very hard to turn, and ran very rough. The habit of cleaning them but once per day has become very common, and a good many are not washed any too clean, this plainly showing in the quality of the cream. In some instances we found patrons taking the same water for washing the bowl and skimming device that had formerly been used to flush out the separator. A few were found using the same cloth to wipe off the oily frame that they had just used to wipe the bowl. Some patrons insist on keeping separators in part of the stables. This cannot be too strongly condemned, for in nearly every case a strong stable flavor was quite perceptible in the cream, and the machines themselves were generally rusty and in bad repair. Some of the cream obtained when the separator was in use was in as bad condition as some of that from the shallow pan. This is easily accounted for. The cream from each skimming was put into the one can, never cooled or stirred, and allowed to stand where it would take on undesirable flavors, and by the time the drawer called it was so thick that a proper sample could not be taken for the test, and made trouble for the maker and patron. But I am very pleased to say that a number of patrons do take good care of their machines, keep them sweet and clean, separate the milk as soon as milking is finished, keeping each skimming of cream separate until properly cooled, and then cover and place in a cool, pure atmosphere. Where this is done no trouble is given. Another great difficulty with most patrons is they skim too thin a cream, the average oil

test being from 60 to 110 per cent., or 13 to 23 per cent., Babcock, while a test from 110 to 160 per cent. oil test, or 23 to 33 Babcock, would give better results and be more satisfactory to the drawer, patron and maker.

If the Instructors could receive the co-operation of separator agents and owners of factories in assisting them to educate the patrons in the proper care of utensils and cream by giving personal and proper demonstrations along this line, we would make greater progress in convincing them, that when an interest is taken a profit instead of a loss will be found. Some patrons seem to lack interest in the great responsibility they have in furnishing finest of cream in order that there may be made that which the whole world is demanding—good butter.

Our buttermakers are trying to do their utmost to improve themselves and their product by attending dairy schools, reading dairy literature and adapting themselves to their conditions and surroundings; but when some patrons send cream from which it is impossible to make fine butter, it is very discouraging. A very small number of creamery patrons attend dairy meetings, read dairy literature, or try to improve themselves as they should, but keep on the same old way,—the same old expensive cows, some unprofitable way of handling their milk and cream,—and blaming the creamery proprietor or the dairy business in general because it does not pay.

To improve the quality of butter during the coming season we must insist on sweeter and richer cream, ask every patron to provide sufficient ice, and see that all patrons receive a personal visit from the owner of the factory, maker, or instructor as early in the season as possible, and furnish him with proper information regarding the care of utensils and cream.

A MEMBER: I was very much pleased to hear Mr. Dean's criticism on the manner of keeping cream, and we would be very glad to have him outline a method whereby the patrons can keep the cream in the very best possible condition. Taking the average farm conditions, I would like to know just what method he would recommend for keeping the cream.

MR. DEAN: I think I fully outlined the different conditions, both for those using a shallow pan and those using separators.

A MEMBER: Which is the best method?

MR. DEAN: I find in nearly every case the cream from the deep setting can was best, better than that from the separator. In a good many cases the hand separator where properly cared for was all right, but in many cases the cream from the hand separator was not properly taken care of and was not good.

A MEMBER: How would you recommend keeping this cream? Have you any objection to keeping it in the cellar?

MR. DEAN: I would have a separate building altogether, away from the house and the barn. In nearly every case where cream was kept in the cellar we found a bad-flavored cream. Everything else in the cellar along with the cream, and the cream was absorbing flavors. There were very few places where we found the cellar not clean, but they only had the one cellar, and in it they stored their stuff.

A MEMBER: Is it possible to get all the butter from the milk? I notice that the buttermilk retained too much butter.

MR. DEAN: No doubt the cream was churned at too high a temperature. If the cream was churned at a low temperature you would get more exhaustive churning.

A MEMBER: Would that be because they had a thin cream instead of a rich cream?

MR. DEAN: No, I don't think so.

A Member: What temperature is the best?

Mr. Dean: It would depend upon the amount of fat in your cream. Take a percentage of 30 to 35, and you can churn at 50 to 52 degrees, 35 to 45 minutes is long enough in order to get an exhaustive churning. If there is a high percentage of fat in the cream, it will churn more quickly. You will churn more quickly with a rich cream than you will with a poor cream.

BACTERIOLOGICAL NOTES OF GATHERED CREAM.

By Prof. F. C. Harrison, O.A.C., Guelph.

During the past summer I had the pleasure of going around to a number of creameries with Mr. McDougall, one of the Instructors, and I gathered samples of cream as it was brought in, and I also examined the conditions at the various creameries. The introduction of cream-gathered creameries has brought new problems to the front, and I think it is a fact that butter from gathered creameries is worth about 2c. a pound less than under the separator system. Now, we have got to get something to improve that, and before we can improve it we must thoroughly understand all the conditions that are present in such cream, and we have given those a little attention, as you will see from the paper which I will now read.

The introduction of gathered cream factories has given buttermakers fresh problems to solve—particularly the best method of handling the very varied quality of the cream sent by different patrons. During the past summer the writer visited a number of these creameries, and inspected the cream as it was delivered at the factory. Much of this cream was old, too sour, often gassy, and many samples had such undesirable flavors as can best be expressed by the definitions of *tallowy*, *cowy*, *yeasty*, *fruity*, etc. Bacteriological investigations of the samples resulted in the isolation of bacteria associated with *dirt*, *manure*, *bad water*, *road dust*, etc. Yeasts were also found giving rise to fruity or yeasty flavors. The effect of these bacteria on the butter is to cause off flavors, lack of flavor, and poor keeping quality. When certain undesirable bacteria were very numerous, a definite bad flavor, such as "*yeasty*," was noticeable.

Certain faults were also present in the factories. Bad water was found in several creameries, containing bacteria which when introduced into butter produced early deterioration. The method of washing out the cream-gathering wagons was also faulty. The best practice consisted in first rinsing the tanks, and then steaming them by the use of a large hose connected with the boiler. Drainage in some factories was imperfect, giving rise to bad odors around the factory. In order to improve the quality of butter made from gathered cream, the farmer must be shown the hygienic importance of grooming their cows, milking in a clean and as far as possible dust-free stable, using boiling hot water for scalding all utensils, cooling the cream to a temperature of 50 degrees, and keeping it in a clean room, cellar, or ice-house, free from bad odors. If these precautions are not taken, the only remedy is pasteurization at the farm. Pasteurization at the factory will improve the results, but on account of the ripeness and age of the cream the best results cannot be expected.

I think we should condemn the use of preservatives in cream. These preservatives are used simply to make up for carelessness, and I think it is best

to impress upon the farmers the necessity for absolute cleanliness. These preservatives are injurious to health.

CREAMERY HANDLING OF CREAM.

By C. W. McDougall, Instructor in Creameries, Guelph.

My subject is: "How to handle cream after it is delivered at the creamery to get an exhaustive churning, and how to churn and work the butter to get the proper grain and moisture."

Owing to the extensive field covered by this subject its treatment is somewhat difficult. We are not yet in possession of all the knowledge we should or expect to possess on the scientific handling of these three phases of buttermaking. In outlining our course of action, it would be unfair to wholly consider a maximum result in one phase as this may be detrimental to a desirable result in another. To intelligently handle the subject in its manifold connections would, I think, constitute a very elaborate paper indeed. For these reasons, I have endeavored to outline a method which embraces well-known principles and is comparatively simple; a method which, though not faultless conforms to good practice.

A definition of exhaustive churning would have as its salient point the reduction of the loss of fat in the buttermilk to a practical minimum. In my treatment of it I shall try to keep this in view, not losing sight of a demand for essential features in the finished product. From the wording of the subject of my paper I am unable to control the quality of the cream I am to handle. In treating my subject in this respect I solicit the same sympathy that is due many of our buttermakers in actual practice. If the cream delivered complied with a demand for a test of 30 per cent. fat, and of at least a comparatively low acidity, we would be quite masters of the situation, even with our present knowledge. In a rich cream the percentage of buttermilk is decreased and even though the percentage of loss of fat be the same, the aggregate loss is less.

We know that a factor contributing to an exhaustive churning is an adequate and uniform cooling of the cream. Our more scientific men are not yet agreed as to the theory of churning, but as practical men we know that the reduction of cream viscosity also contributes to an exhaustive churning. Two powerful agents operating in this direction are pasteurization and the development of lactic acid. By their characteristic actions on the serum of the cream its viscous nature is very much reduced. Great churnability of the cream may be more properly spoken of as their immediate effect, but greater churnability is closely allied to, and when under control, is coincident with exhaustive churning.

By adequate cooling I mean a lowering of temperature consistent with the demand for aiding in, or retarding of, lactic acid development, and a solidifying or tempering of the fat globules to a point that produces a good grain or texture. Very low temperatures for a short time are equivalent to higher temperatures for a longer period. We must have uniform cooling, for the portion of cream in a vat remaining at the higher temperature has its churnability increased both by the accelerated development of lactic acid and decreased tempering effect upon the fat globules; whereas in the cooler portions of the cream, the churnability is lessened both by the retarded acid de-

velopment and increased solidifying effect of the lower temperature. I have in view here a range of temperatures common in cream ripening. The most up-to-date method of cooling the cream is by running it over an improved cooler before it reaches the ripening vat. Cooling cream in a vat is a method subject to many neglects; after the cream has coagulated the work is laborious and very unsatisfactory.

Now as to the application of these three factors. Have the cream delivered as often as possible; if it is unpasteurized, pasteurize it at once, for you cannot do it too soon. Keep the temperature at the pasteurizer up to 185 degrees to avoid curdling, which is apt to occur in cream of medium acidity. As far as possible, avoid adding water to the cream; keep the per cent. of fat as high as possible; cool at once to as low a temperature as you find to be practical. Pasteurized cream demands a thorough cooling. It may be all right to churn the cream without any additional treatment other than the attention given to it in stirring frequently during the cooling period; but, generally speaking, the buttermaker should aim to have on hand a good lactic acid culture. This is made possible by a supply of skim-milk at or adjacent to the creamery. The flavor of a good lactic acid culture is closely related to that of good butter. The aim should be to have a vigorous growing culture—one that will produce acid at a low temperature. The addition of even a small percentage of culture of this kind will considerably augment the effect of pasteurization on churnability. If the cream acidity is already high, and the addition of a culture is found to improve the flavor of the butter without interfering with the operation of churning, use it. Our average cream, however, will stand very little diluting.

Of course, in all cream ripening we must adopt a course that is practical and not arbitrary; but after certain conditions are established it is amazing what simple rules will do. Different lots of cream have their individuality, though equipment and surroundings of creameries vary, and on this account the buttermaker is a great power for weal or woe, according to the manner in which he applies the principles involved. Endeavor to get along with as small a percentage of acid as possible; in control work I think .5 of a per cent. is an abundance.

In the above matter I have kept in view the production of a cream of good flavor, a cream of a temperature consistent with its individuality and fat content, and a cream that will churn to a condition for drawing off the buttermilk in not more than 45 minutes from the time the churn is started.

Now, as to the influence of the churn on an exhaustive churning. At this point, too, we reach the more mechanical side of the production of the proper grain and moisture content of butter. I do not think that any of our combined churns are the equal of the box in thoroughness of churning. We want a quantity of cream in the churn suitable to its capacity, and we want it speeded to the amount of capacity; in other words, we want the contents of the churn subjected to a sufficient and uniform concussion. The more simple the internal structure of the churn, other things being equal, the better. Churns with inner devices, sight glasses, and vents that furnish lodgment for cream, are objectionable. In this respect some churns are wasteful in practice and useless for experimental purposes.

When the cream in the churn reaches the stage known as "breaking" it is desirable to have control of the extent of agitation or concussion. We do not want the gathering process to take place too rapidly or yet be unduly delayed. Speeding the churn to the point where the concussion is the greatest shortens the gathering period, whereas a speed above or below this prolongs it. Avoid the extremes of gathering too quickly or churning the gran-

ules into a smooth, round condition. However, if the operations up to this point have been intelligently guided not much trouble will be experienced. The buttermilk should be drawn off as soon as the granules are of sufficient size to permit of it being done without the smaller granules escaping. Now rinse or wash the butter sufficiently to remove practically all of the buttermilk, using water cold enough to keep the granules apart. The surrounding conditions, and the character of the granules, are the main guides in the temperatures to be used; ordinarily it will run between 50 and 55 degrees. Agitate the granules as little as possible at this washing. Next add water at a somewhat higher temperature and continue the washing, associating with it an increase in the size of the granules. Granules somewhat large, and that have had their component parts thoroughly washed, are objectionable from few points and advantageous from many. In both cases endeavor to have the granules showing angular surfaces; the volume of a pea in the first washing, and that of a large corn in the second, is good practice. Of course, in each washing none but the best water obtainable should be used.

Strive to get body in the granules, even if it is necessary to cool the cream to a temperature much below that at which it is to be churned. The market is not so critical on butter texture as it has been, and this body gives us considerable liberty with churning and washing temperatures and buter-working that we have not had in the past.

Let the butter drain sufficiently to prevent a waste of salt. Apply salt or salt and preservative, to suit the demands of the market, distributing it as evenly as possible in three or four applications, turning the butter each time but keeping it as compact as possible. Work at once to a point where an efficient distribution of the salt is obtained, where the excess of free moisture is expelled, and at least fairly good grain retained. The approach of a stringing condition of the butter indicates the danger line in grain.

These latter points are best reached by making the extent of working conform to the observed results of successive days work under the one method. In this connection every maker should have a butter trier and thoroughly check his butter in storage, for in this way only will he be intelligently cognizant of merits and defects in his goods, or whether his work is entirely void of a positive method.

In conclusion let me say that I think there are great fields of investigation and improved practice before us. Makers should have a definite line of action adaptable to both normal and abnormal conditions. Let us be sure of our ground before we make any radical changes; when a suggested change is beneficial let us adopt it at once. Intelligent observation and industry, coupled with a desire for advancement, are qualities that are going to count in the future.

Miss Rose: Would you do away entirely with the sight glass on the churn?

Mr. McDougall: I certainly would not, but I think the sight glass should be nearer the circumference than towards the centre. It will take a very small quantity of unchurned cream to raise the buttermilk considerably in fat contents.

Miss Rose: Why would you agitate the granules but little in the first washing?

Mr. McDougall: In writing that, I had in view not to gather the butter. When the butter is in granules there is more buttermilk in the first washing than in the second.

Miss Rose: I have always agitated very quickly to throw the particles apart, and get the buttermilk out, and I always thought that by churning quickly you got them apart.

Mr. McDougall: You do. When the agitation is very slow, or very rapid, you have a minimum concussion of the contents of the churn. The cream in this case flows around the outside of the churn rather than flowing against the opposite side.

A Member: Would you advise putting the salt on after the rolls were in or when it was in granular form?

Mr. McDougall: I would put it on in the granular form, when the granules are rather large.

A Member: Would you use a culture in pasteurized cream?

Mr. McDougall: If the quality of the cream was not good I would certainly recommend the culture.

A Member: Do you find that when pasteurizing sour cream you sometimes have a cheesy flavor in the butter?

Mr. McDougall: An over-ripe condition of the cream is closely associated with the cheesy flavor. I think in that case I would recommend the use of a culture.

A Member: What do you find is the best water to use?

Mr. McDougall: The best water obtainable; that is the only practical water.

A Member: Water from wells with a little taste of sulphur in it, would that make the butter taste of sulphur?

Mr. McDougall: It may, but not to an appreciable extent.

A Member: Would you recommend washing the butter twice?

Mr. McDougall: I think it is preferable.

Miss Rose: With butter for immediate consumption, would you recommend two washings?

Mr. McDougall: The addition of the two waters, having in view at the second washing an increase of the size of the granules, makes one washing impossible under that method. It is an advantage to increase the size of the granules by adding a large amount of water. I think it is better to rinse out the buttermilk at the first washing, and then wash and complete churning, and give a second washing.

A Member: What temperature would you recommend having the water for washing?

Mr. McDougall: It would depend upon the condition of the granules. You are obliged to wash with fairly cold water when the granules are soft.

A Member: Would not the temperature of the water for washing affect the butter?

Mr. McDougall: I would recommend the washing water to be somewhat below the churning temperature; especially for the first washing. For the second washing I would use water of a higher temperature if possible, because the granules can be gathered to better advantage, and the salt dissolves on it better.

A Member: Would it have any effect on the working of the butter?

Mr. McDougall: In Mr. McKay's presence I think it would be impudence on my part to answer that. (Applause).

FOOD PRESERVATIVES.

By Prof. R. Harcourt, O.A.C., Guelph.

The use of preservatives in food products is as old as civilization. Wherever climatic conditions favor decay the preserving of foods has always been and always will be an important question. The ancient Egyptians were conversant with the art of preserving meat with salt, and six centuries before the Christian era Cyrus sustained his troops on long expeditions with salted meat. The preservation of meat by salting, drying and smoking is practiced in Oriental countries, and they are the most common methods employed in civilized countries, not only by those in rural districts who preserve their own meat, but by the large packing-house establishments which handle immense quantities of these perishable food substances. Fruits are also very frequently preserved by drying, but more commonly by means of vinegar, alcohol, and sugar. Foods preserved in these ways are recognized as wholesome. They may not always be suitable for use in the sick room, but their taste is a sure indication of the nature of the substance used as a preservative.

With the development of the science of bacteriology it has been made plain that the decay of food is due to organized and unorganized ferments and that anything that will destroy or retard the action of these ferments will prolong the commercial life of food substances. It has also been found that the most rapid development of these ferments takes place between certain degrees of temperature, that high heat will destroy them, and that at low temperatures their action is very much retarded. Hence, the institution of methods of sterilization and the use of cold storage in preserving foods.

Concurrently with the development of our knowledge of these ferments, chemistry has made known the existence of many new compounds capable of either wholly preventing or greatly retarding the action of these organisms. These chemical substances are generally classed as antiseptics, and it is but natural that attempts be made to use them in the conservation of food. Their application is, however, restricted by the fact that many of them are actively poisonous, or render food unpalatable, or that they are too costly for use on a commercial scale. They differ from the old preserving materials in being almost without taste or odor, and that they may be used in ufficient quantities to retard the action of ferments without being detected in the food.

At the present time the chief chemical compounds, other than salt, sugar, and alcohol, used in the preservation of foods are as follows:

1. Boric or boracic acid and borates; so-called "boron preservatives."
2. Sulphurous acid and sulphites.
3. Fluorides.
4. Salicylic acid.
5. Benzoic acid or benzoates.
6. Formalin or formaldehyde.

The boron preservatives are apparently the most commonly used, and are preparations of boric acid and borax, with or without admixture of other preservative ingredients, such as salt, saltpetre, sugar, sodium carbonate, etc., and are generally sold in the form of a white powder under a great variety of fanciful names, which, as a rule, afford no clue to their real nature. They are used largely in milk, cream, and butter, for preserving meat food generally, and to a smaller extent in beverages.

Salicylic acid comes next in importance as regards the extent to which it is used as a preservative. It is a white powder, and is employed chiefly

in wines, beer, cider, and temperance drinks, and in foods derived from fruit, as jams and jellies, in order to prevent alcoholic and other fermentative changes. It is also said to be used in canned goods.

Formalin is a 40 per cent. solution of formaldehyde in water. The solution is diluted to various strengths and sold as a preservative for milk chiefly, and to a less extent for other foods. In concentrated solutions it has a strong irritant odor, but when used in milk in quantities sufficient to retard fermentative action, it cannot be detected by taste or smell. The addition of formalin to milk is undoubtedly objectionable, as it interferes with digestion to a marked degree.

Sulphurous acid and benzoic acid are generally used in preserving beverages. The latter is also added to fruit and vegetable preparations, sometimes to canned soups, and more rarely to dairy products.

Nearly all the preservatives now on the market are advertised as being "entirely wholesome," "capable of keeping the various articles of food perfectly sweet and fresh for any length of time without the use of ice," that "its ingredients are all as healthful as salt," etc., etc. On account of the perishable nature of foods, it is obvious that a substance having the properties claimed for the various commercial food preservatives would be of incalculable value. At the same time it is important that nothing should be added to foods which is toxic in itself, or which interferes even to the slightest extent with the process of digestion. This last point is especially important in its relation to invalids and children.

During the last few years the practice of using preservatives in milk and butter has become very common. Milk is particularly subject to various changes due to the action of organisms contained therein. Butter is composed largely of fats, which belong to the same class of compounds as the flavoring substances in fruits and flowers, etc., some of which have the most delicate odors; but which upon decomposition yield volatile products of a decidedly offensive nature. The breaking up of these fats is supposed to be due to the action of certain ferments which are natural to butter, and which cannot be wholly eliminated, no matter how carefully the milk and cream may be handled. Moreover, these organisms are known to produce products which are themselves very offensive. It would seem that with a substance like butter in which the preservation of its peculiar delicate flavor is so important that any material which will help to retain this would be of particular value, especially when the British trade, which is our principal market, demands a practically saltless butter.

From the evidence given before the Commission appointed by the British Government to enquire into the use of preservatives and coloring matters in the preservation and coloring of food, it is evident that preservatives, principally boron compounds, are extensively used in butter in British Isles. Further, a member of a large commission firm told the Commissioners that they advised all their patrons in Australia, New Zealand, Argentine, and Ireland, to use preservatives, and a representative of the Scottish Wholesale Provision Merchants' Association stated to the Committee that all the butter from the Australian Colonies of which he had any experience contained boric acid, and that his firm had strongly advised the Agricultural Department of the Canadian Government to issue recommendations to the factory men to use boric acid.

It is apparent that the English market demands a saltless or a very lightly salted butter, and that to meet this demand and at the same time retain the fresh flavor of good butter, it is essential that some other substance than salt be used as a preservative. The English commission firms advise the use

of boron compounds, and our competitors in that market are apparently using them. It would appear that if we hope to retain or increase our trade in butter in the English market we must use preservatives. This is, of course, presupposing that the butter has been well made; for it must be understood that preservatives will not improve the flavor of butter, they simply help to retain the flavor that has been developed.

On the other hand, it is doubtless true that all preserving materials, whether it be salt or the so-called chemical preservatives, have a more or less injurious effect on digestion. Some are certainly more detrimental than others, and their use should be prohibited; while it might be well to limit by law the amount that may be used of those that are less injurious. Dependence cannot be placed in the claims of the dealer that his brands of preservatives are harmless. All these chemical preservatives are antiseptic in nature, some are sufficiently tasteless and odorless to be used in large quantities without their presence being detected; and the danger is that if preservatives are used in meats, canned goods, milk and butter, we may in the aggregate be forced to eat more of these substances than our system can stand. If preservatives are to be used, we must not blind ourselves to their true nature, and further experiments should be undertaken to definitely settle which are the best compounds for this purpose, and in what proportion they may be safely used.

PRESERVATIVES IN BUTTER.

By Prof. H. H. Dean, O.A.C., Guelph.

It seems to me we have been working pretty hard this afternoon, and possibly you have received all that you can stand at one session. However, we must finish this question of preservation whether we live or die, and I shall try to bring before you the result of experiments conducted by us in conjunction with the chemical department of the College. The chemical analysis of the different preservatives was undertaken by Prof. Harcourt, and the full information will be published in bulletin form early in the year. I have a stack of material here, and if I were to go into it I would keep you for the next two or three days, and it is only possible to bring out the bare facts in connection with the work.

There is a demand for improved keeping quality in our butter. One of the common complaints that is made about Canadian butter is that it does not keep well. We have been enabled to improve this to some extent by adopting pasteurization, and the use of a pure culture; but that is not sufficient where the butter is held three or four months in cold storage, and in many cases it would not be sufficient if we exported directly to the markets of Great Britain, and there is an increasing demand in that country for salt-less butter. The most common preservative which has been used in the past is common salt or sodium chloride, which we can take in comparatively large quantities without having any serious effects. In the month of July, and in the month of September of the past summer we made four tests, and the method of making these tests was briefly as follows: We would take a churning of 300 or 500 lbs. of butter, and from that we would take from six to eight different lots, sufficient in each lot to make 28 lb. boxes of butter. Into one of these boxes we would put salt at the rate of three-quarters of an ounce, into another lot of butter we would put one-quarter per cent. of some com-

mercial preservative, and we had five different kinds of commercial preservatives. Then we used borax from one-quarter to one-half per cent. In one experiment we used a mixture of salt and preservaline, using a quarter per cent. of each. In addition to the more common preservatives that I have mentioned we used two that are rather uncommon, namely, sodium fluorides and salicylic acid, and we came to the conclusion that neither of these were suitable to put into butter. Sodium fluorides is indigestible, and even if taken in small quantities it will give you a severe pain in the stomach. Salicylic acid gives an objectionable flavor to the butter. Mr. Woodard, of Montreal, said that the butter in which salicylic acid was used had no commercial value.

If I had time I would like to go over some of the comments that were made upon these samples by the experts in Montreal, but time will not permit. However, these comments will be put in the bulletin, and by reading it you will get all the information. Some of the samples were said to have a preservative flavor. We find that a quarter per cent. of any of these preservatives is sufficient to hold the flavor of the butter for any reasonable length of time, and if you use more than that it gives the butter a preservative flavor. Another thing that we ascertained was that the samples, almost without exception, moulded very badly. That was one point that was brought out very strongly, and very plainly, and it could not have been an accident because there were eight or nine boxes made from the same churning, and put into the same kind of boxes and the same kind of parchment paper used and the butter that was treated with preservatives, without exception, moulded very rapidly, and where salt was used the boxes had no mould on them.

In the month of December we made a rather severe test of these preservatives. We made some nine prints of butter, using salt in one and preservatives in the other lots. We put these prints in a room where the temperature was from 60 to 70 degrees, on the 6th of December, and we examined these samples on the 13th of January, and the sample with salt was very badly off in flavor, being very rancid. Most of the samples in which the preservative had not been used were also quite objectionable in flavor, but the samples with the preservative in held the flavor fairly well. That demonstrated the point that these preservatives will hold the flavor of the butter under extremely adverse conditions, such as was carried out in that test.

One word as to the effect on the human system. During the past term at the College we have had one table of the students who volunteered to use butter containing preservatives. They used it for six or seven weeks. It was wholly voluntary. So far as we could see it had no effect upon them, and they say they are willing to continue the experiment during the present term.

About the first of October we went through all these samples of butter before sending them to Montreal. I went over them myself and three of the senior students of the College. We had to taste some 50 or 60 samples, and in tasting so many samples in an afternoon we were bound to swallow a considerable amount of the butter. I tried to swallow no more than I could help, but that night I had the most violent headache I have ever had in my life, and I am not subject to headaches. I had to stay up most of the night, and I asked the boys if they had any peculiar sensation after tasting this butter. On two of them it had no effect, but one of them had experienced just the same sensation as myself, a violent headache. I had that same experience on two other occasions when scoring this butter, and so far as I am concerned I believe preservatives have an injurious effect upon my health, and I would not like to use them for any length of time, but there are persons who could use it without experiencing any evil effects.

Just about a week ago a lady and gentleman from Newfoundland inspected our dairy department. The gentleman is interested in the manufacture of oleomargarine in Newfoundland, and he was thinking of starting a creamery down there, and we were discussing the question of preservatives, and his wife said that she never ate any butter in Newfoundland. I asked her why. She said: "When I eat butter I have a headache and indigestion." and she thought the reason was that because almost invariably butter sold in Newfoundland has preservatives; and I think that is an evidence that preservative is injurious to the health. What are we going to do about it? —

Our experiment would lead us to come to the conclusions:

First, That the boron compounds certainly tend to preserve the quality of the butter.

Second, Sodium fluoride, formalin, and salicylic acid should not be used as food preservatives, and especially they should not be used in butter.

Third, It is not necessary to use preservatives in butter for the Canadian trade.

Fourth, If the British export trade will allow one-half per cent. of preservatives, and that seems to be a maximum amount that is considered safe, I think our butter makers are justified in using from one-fourth to one-half per cent.; but we are not prepared to recommend the use of preservatives in butter for the Canadian trade.

I think it is quite possible that we can get borax at a price which will give us just as good results as the different commercial preservatives, and as far as our experiments go they indicate that borax is just as good as any of the commercial preservatives.

Boracic acid gives us the poorest result. Common borax gave us nearly as good results as any of the commercial preservatives.

Next, the effect on the health has not as yet been fully determined, but the indications are that if used in excessive quantities it would have quite an injurious effect upon the health.

Preservatives seem to bring about a condition which is very favorable for the growth of mould. If the question of preservatives is going to be a live one in our butter industry, then I think the time has come when this question of preservatives should be taken under Government control, and the whole thing should be under Government supervision, and only those preservatives which if used in small quantities are not injurious, should be allowed, and the quantity should be regulated in some way.

This question has come to be such a serious matter that I think it is time it was brought under control, so that the Government can see that only such preservatives as are not injurious to health, when used in small quantities, are put into butter and other food products, but should also see to it that excessive quantities are not used, as there is danger if they are used in large quantities. (Applause).

Mr. Ruddick: Did you use the preservative with salt in any of your experiments?

Prof. Dean: We mixed one-fourth per cent. of salt and one-fourth per cent. of preservatives in one of the experiments.

Mr. Ruddick: You did not use it with the ordinary amount of salt?

Prof. Dean: No.

Mr. Ruddick: It might be a question as to whether it is the lack of salt or the presence of the preservative that is causing the mould.

Prof. Dean: We did not use the preservative where we used one-fourth per cent. of salt, but with one-fourth per cent. of salt and one-fourth per

cent. of preservative it moulded just as badly as when the preservative only was used.

Mr. Ruddick: There might be some advantage about having the boracic acid dissolved.

Prof. Harcourt: I think where boracic acid is used, you will find it will crystallize on the outside surface of the butter.

Mr. Ruddick: I understand that boracic acid will not easily dissolve in cold water.

Prof. Harcourt: Even in conditions of certain temperature where you might bring it into solution, it will go out of solution. If you put the butter into cold storage it would crystallize on the outside of the butter, and give the butter an unsightly appearance. Some of these commercial preservatives are almost entirely borax.

A Member: Have you ever tried soaking the box linings in either commercial preservatives or in a strong solution of borax?

Prof. Dean: In the regular experiment we soaked the papers in a salt and formalin solution. In one experiment made in December we soaked the paper of one set in a solution of preservatives, and when examined last Friday no mould has developed on them; but we find that the mould does not easily develop until the boxes are six or eight weeks old at least.

A Member: Is there saltpetre in the various preservatives?

Prof. Harcourt: Yes, it is said to be present, usually along with the boron compounds. We have examined a great number of these; yet it is more or less objectionable, just the same as other substances are objectionable.

A Member: Would formalin be apt to be too volatile? Would the butter not be apt to lose the effect of the formalin in a very short time?

Prof. Dean: I do not think formalin is any use for the purpose of preventing mould. Soaking the papers in formalin solution is of very little use for the purpose of preventing mould.

Mr. Woodard: Does not the mould begin first in the butter and work

Prof. Dean: I am not prepared to answer that.

Mr. Woodard: In one package the inside paper was affected and the outside was not moulded.

Mr. Stratton: I think there was mould on the outside paper as well as the inside.

Prof. Dean: That is a matter we will look into another year.

Miss Rose: If a farmer's wife was putting up a crock of butter in the summer time for her own use in the winter, would you advise the use of any of these preservatives?

Prof. Harcourt: She could use one of these boron preservatives. I do not think there is any of the other preservatives could be recommended at all. That is sold under a great variety of names.

Miss Rose: Would the common borax we get in the drug stores do as well?

Prof. Harcourt: We have got good results from that, but whether boracic acid in addition to that would increase the preservative power I cannot answer.

Prof. Dean: I find that borax alone gave good results.

Miss Rose: What amount would you use?

Prof. Dean: A quarter of a pound of preservative in 100 lbs. of butter. Put it in just before you salt it. Where we use the two together, we put it on just the same as salt.

Miss Rose: I am only looking out for the interest of the farmers' wives; and the rest of you can look out for the manufacturer. (Applause).

Mr. Ruddick: The Department of Inland Revenue at Ottawa will prosecute anybody using formalin in milk or cream, and any person using a certain quantity in England will be prosecuted there. The Board of Agriculture has recommended that one-half per cent. be allowed, but if you use anything over that you are liable to prosecution.

Prof. Dean: I think there is lots of room for prosecution in that connection. I was in the city of Toronto last summer, and a lady told me they had been getting cream which would not sour, even if they kept it two or three months. She sent a sample to us, and we found that it had a high per cent. of formalin, and I think it is being used very largely in our city milk supply, and I think this question should be gone into, because undoubtedly there is a lot of this stuff being used in cream or milk or butter, and I think it should be under proper Government regulation. (Applause).

A Member: If I add one-fourth per cent. of formalin to the butter would it have an injurious effect?

Prof. Harcourt: You must take into account that the borax or the boracic acid are comparatively insoluble compounds, and will therefore nearly all remain in the butter. I think it is estimated that as a rule about 80 per cent. is retained in the butter. I was somewhat surprised in reading the evidence before the British Commission in 1898 that they then recognized as much as one per cent. preservative. They thought one-half per cent. was too small, but they have now come down to one-half-per cent., and I understand that salicylic acid is prohibited for use in canned goods in the United States, and there is an agitation on foot over there now to be allowed to use it. A point that we have got to remember that it is not the preservatives that is in one article, but it is the preservatives in all articles, and we may very easily get far more preservatives than we can handle. Not long ago it was charged that in the milk supply coming into New York they used very largely formalin, and now they have prohibited it. There is a test by the use of sulphuric acid whereby you can detect the presence of formalin very quickly.

Prof. Dean: If you put one-fourth per cent. formalin in the butter, 80 per cent. of that would be retained in the butter and 20 per cent. worked out.

A Member: In adding a preservative to the butter I always add salt first, give the worker about five revolutions, and then add the preservative.

Prof. Dean: Why would you do that?

A Member: Because I think it would retain more of it.

Mr. Ruddick: Very great care should be taken that this formalin is evenly distributed, because you may get more than the average amount in some portion of the butter. In New Zealand we would frequently come across a tub of butter where the formalin was too strong.

Prof. Dean: Where we mix the salt and preservative we mix the salt first; and where we use the preservative only, we put it in a strainer dipper, and distribute it to all parts of the butter, and I think we get a fair distribution.

JUDGING PRIZE BUTTER.

By Prof. G. L. McKay, Agricultural College, Ames, Iowa.

I find that they use different methods for scoring butter in different parts of the country. Scoring butter should be an educational feature, leaving out of the question the prizes altogether. In some places they use the method

of placing the maker of the butter behind his tub, so that when the judge comes into contact with the butter he may point out the defects to the maker.

The method we use in our State is, where we have three hundred or four hundred tubs to score, we score the butter first, and then score him and show him the defects in the butter, and we have no difficulty in convincing the man who gets a high score that our judgment is right. We have no test except in the sense of taste and smell, and we are sometimes liable to error, but usually a competent judge is pretty safe to follow in the matter of judging butter. Take the other fellow who gets a low score and he is hard to convince, and sometimes when we do convert him he does not stay converted.

Now to go back to the old style of making butter. Go back to the old house where we find a family living in one room, and you will see the old gentleman with his short pipe smoking away and everything is saturated with tobacco. His hands are grimy and dirty, and we find that all kinds of food are cooked in that house. The old man goes out to the barn, milks the cow, and dips his dirty hands into the milk; and then the milk is carried in the house and placed on the shelf, and it is subject to all kinds of odors. It is finally churned into butter, and that is what we used to call butter.

There was a man in Wisconsin who invented a method for taking hairs out of butter. (Laughter.) Contrast that method with our present methods, where we have model dairies, costing from fifty to sixty thousand dollars, and some of the barns are regular palaces. Take the dairy of Mr. Gurler, where the barns are whitewashed, and the milkers are compelled to wear white suits and to clean their finger nails and to wash their hands. Where all the cows are curried, and the milk is carried from the barn and separated, and the cream mixed with the milk again, and put down to a temperature of forty, and then put into sterilized bottles. Such milk has crossed the Atlantic to the Paris Exposition and returned again to America in sweet condition without the use of preservatives. That shows the effects of cleanliness.

The butter I have scored here is as good as the average butter under winter conditions, but I find that it contains too many winter flavors. It has been shown that the gas-producing bacteria are found mostly in manure, and that they produce undesirable flavors; and we find these conditions in the winter months, and where the barns are kept warm we find the worst conditions, because they are more favorable for the growth of these organisms. If I was selecting milk for a starter, I would get it from the man who had a cold barn. The intelligent maker, in order to overcome these conditions, wisely skims as thick a cream as he can skim, and gets rid of a lot of undesirable bacteria with the milk serum, and then he adds a starter.

In your reports to-day I have heard it stated that some men use a skim-milk starter and others a pasteurized starter. There is only one method of preparing a home-made starter or ordinary starter, and that is to select a number of samples of milk. Select them in glass jars and let your milk sour. Hold them at a temperature of about 70 degrees, and when the curd coagulates solid, without any pin holes, and the milk has a pleasantly sour taste, you may be sure you have the right kind of bacteria to produce the best kind of starter. That is one of the principal things that govern good butter making. I think I could take ten men in my State, and ten men in the State of Minnesota, who will make butter that will score 98 degrees nine times out of ten, and do it in the winter months. If they find the milk sours right all the time they will use a heavy starter—25 or 30 per cent. If a starter is good you should use enough to control your cream, because a starter

is nothing more than adding an enormous amount of bacteria of the kind you expect to control and to produce the right flavor, I have known some creameries to use as high as 40 per cent.

I find a lot of the butter here to be streaky and mottled. There is no necessity for having streaky or mottled butter, although that is a common defect in the working. Mottles in the butter are caused by uneven distribution of the salt. If the butter is worked sufficiently there will be no mottles in the butter.

Mr. DEAN: Would you recommend a creamery to purchase a commercial starter?

Prof. MCKAY: I would recommend them to purchase pure culture, especially in the winter months. After you have got your starter you could prepare your mother starter from the original starter each time. We have creameries in our country where the creamery men want a fresh culture and they buy their cultures weekly or every two weeks. Going back to the mottled question, I believe that at this time of the year the trouble is due largely to the washing. You permit the butter to drain dry, and you have not sufficient moisture to thoroughly dissolve the salt. If you are making in the ordinary way at this time of the year, it is better to put the salt on the butter as soon as the water is removed. Revolve your churn and permit your salt to stand in that moist condition fifteen to twenty minutes. It is the water in the butter that dissolves the salt. Then put your rolls in gear and work. I have seen a man work butter for fifteen minutes, and another work it for three minutes, and I have seen the butter that was worked three minutes thoroughly worked, and the other man that worked it for fifteen minutes had mottles. I do not believe any man should make butter that would score only eighty-four or eighty-five, unless the cream has been spoiled before it came to him. If he will prepare a right starter and have sufficiently thick cream, he will control the flavor and avoid that winter condition in the butter. Some imagine that pasteurization will remove these evils. Pasteurization will remove only the volatile products. We have been experimenting with sour cream pasteurizing at 180 or 184 degrees, but we have gone back from that method, and our large creameries are heating their cream to 135, not with a view to destroying the bacteria, but of carrying off the odors that are there. It is found that by heating to a high temperature that the butter invariably develops undesirable flavors, and is in a worse condition in most cases than if it had not been pasteurized at all. The large creameries are now following the method of heating to 135 degrees.

Prof. DEAN: You are referring to over-ripe cream?

Prof. MCKAY: Yes. We find more benefit from pasteurizing and using a large amount of starter; but I would not recommend it as a general method. During the winter months I am in favor of pasteurizing a good cream, and then using a heavy starter. Prof. Dean pasteurizes cream, then he adds a starter, and then churns. Now, the difference between that method and the other method is that as Prof. Dean develops his flavor in the starter, he first selects a good milk for his starter, and pasteurizing the cream destroys the organism in the cream, and the flavor he has in the butter is the flavor of his started. I scored some butter at the College last summer made by this method, where they had pasteurized, and where they had churned it, and there was a difference of at least two or three points. I believe Prof. Dean is taking up a good line of work, especially for the winter months.

Going back to the butter at the exhibition here, in most cases it was fairly good. In only one case I found the body was weak. It had evidently been churned at too high a temperature, and that shows that your makers, as a general rule, understand the methods of general workmanship. I believe that all butter makers should attend the dairy school for at least two or three terms. We have a special course for creamery men in our State, and experienced makers go there every winter. We have a large class and they go every winter, so as to keep up to the latest things in butter making.

The man who scored second highest at St. Louis was sent by his company twice in succession, and the result is their butter has a reputation, and sells at one and one-half cents a pound higher than it formerly did. We can never get to a point where we are unable to get further information. If you go to a dairy school and imagine that you know more than the instructor, it would be better for you to stay at home. The brightest buttermakers we have in our country are dairy school men, and they should advocate going to the dairy school.

Mr. WEBBER: Do you find any fishy-flavored butter?

Prof. MCKAY: Yes; but not very much.

Prof. DEAN: You have in Prof. McKay an authority who is recognized the world over as one of the best butter men in the world. You will probably not have an opportunity to meet him again for a good many years, and you ought to embrace this opportunity and ask him a number of questions. (Applause.)

A MEMBER: Have you any experience with fishy flavor?

Prof. MCKAY: My own belief is, that it is largely due to the brand of salt used.

A MEMBER: Would you pasteurize milk in the summer months?

Prof. MCKAY: I believe pasteurizing will come into general use, and the reason I spoke particularly in connection with the winter months, is that it has been demonstrated at our school by a bacteriological analysis that milk in the winter months contains about seventy-five per cent. of undesirable species of bacteria, and the same tests in June showed only ten per cent. Therefore I would recommend pasteurization particularly in the winter months.

I had a gentleman come to me who sent some butter to New York and they could not sell it for more than six cents a pound for grease, it had so very rank a flavor. I examined the butter, and I told Prof. Eckles to carry on an investigation. He found that he could produce that same flavor in our cream. A great many people say that when a rain comes, it settles the dust and prevents certain organisms from getting on the cows' legs and body and dropping in the milk.

A MEMBER: Buttermen connected with creameries conducted under the cream-gathering system, have been interested in ripening cream, and I understand the practice of pasteurizing has not been generally adopted, and I am sure we would be very glad to have Prof. McKay outline, in detail, the method which has been adopted in factories on the other side.

Prof. MCKAY: I have been trying to gather as much information as I can along that line, and I have written to the large creameries and asked particulars as to their method of pasteurizing, and I find that each party thought he had some secret process that he did not want to divulge. Letters came back in this way: "We are pasteurizing, but we are not just sure our-

selves, and we are not thoroughly satisfied which is the best point to pasteurize to." I came in contact with the chemist of the Continental Creamery. His business is to travel around from creamery to creamery, and he told me they had quit the method of heating to 184 degrees, because it was found that by heating butter for a short time it developed undesirable flavors. They use pasteurizing now merely as a method of aeration, and then they depend upon a large starter. Some of them grade their cream and send the butter to the commission house to sell, and if they get a cream that they are satisfied will not make a good article of butter, it is made up and sold at a less price.

A MEMBER: We are going very fast to the cream-gathering system in Western Ontario. I believe in some parts of the States you discriminate in the price you pay for the cream. Will you tell us about that? Do you consider it a good practice in the business as a whole?

Prof. MCKAY: I have an interest in a hand separator creamery myself, and we do not discriminate. They are discriminating in the large trust combination creameries. Discrimination would be all right providing the man discriminating would carry it on honestly; but if that method is used for the purpose of defrauding the people, and getting a price, it is not right. Some of them have a method of paying almost any price in order to get the stuff. I think if discrimination was carried on honestly it would help the patrons to give better goods.

Miss ROSE: Do you think it at all practicable for the people on the farm to pasteurize their cream?

Prof. MCKAY: I think if we had farm pasteurizers it would be a godsend to the business, because then we could keep the cream in a sweet condition, and keep it several days. The great expense is in the haulage of the cream. In our State the question of the calf is a great one. It is a corn State, and they raise beef, and we must take the calf into consideration. The intelligent feeder gets the hand separator and gets his sweet milk for the calf, and he will not go back to the whole milk system.

Miss ROSE: Could not they pasteurize in an ordinary can in a dish of water on the stove?

Prof. MCKAY: I think that would be possible, but there is danger of scorching or injuring the milk. It takes intelligence to handle the business, and the person who will not properly care for the cream will not pasteurize it properly. If the cream was properly cooled, I believe we could get good cream without any trouble.

A MEMBER: Outline your method for preparing the pure culture in the winter months?

Prof. MCKAY: We usually get a culture in the liquid form. Some are put up in a powder form. We find the best results from using a very small quantity of milk, about a pint, and pasteurizing that to 190 degrees. We sterilize a bottle and put the milk in the bottle; then we put the bottle in water, and pasteurize the milk in that way. After standing twenty minutes at a temperature of 190 we let it slowly cool back to a temperature of 70 degrees, and then we add a pure culture to that small quantity of milk. When that milk coagulates, we endeavor to keep it at a temperature of 65 or 70 degrees until it coagulates, then we pasteurize some of our best skim milk or whole milk. I prefer whole milk unless you have got a separator that you know is thoroughly clean at all times. We pasteurize the whole milk, and inoculate this with 5 per cent. of the mother--starter. You will get better results by carrying on the pure culture before adding it to the starter, and then you are prepared to add it to the cream, too."

A Member: In the report of Mr. Barr he states we have 58 creameries in the western part of Ontario, and 44 are cream-gathering creameries. You will find a number of factories are closed up because the number of cows kept was not sufficient to support the factory. The skim-milk went back in an unsatisfactory condition. When it comes down to the cream-gathering factory, the farmer has the milk in his own hands, but we have no way of knowing in what condition the cream is kept.

Prof. McKay: I would say: Educate your patrons. The majority are using hand separators, and by a little work you ought to be able to educate your patrons so that they will send you good cream. A mistake that is frequently made is in skimming too thin. A great many farmers imagine that as they have sent a great bulk of cream they will get large results, and it should be the reverse. If they would skim the milk and just send the cream to the factory, the cream would keep sweeter, and they would have more skim-milk to feed the calves. The trouble with us is that we have a great many separator agents who go out in the country to the farmers and they tell them they only need to clean the separator once a day.

A Voice: We have them here.

Prof. McKay: Well, you want to shoot them. (Applause and laughter). In skimming the cream the organic matter or dirt is thrown out to the surface of the bowl. A lot of the bacteria is thrown out with it, and it stays there until the next milking, and the result is that in many cases you get worse results from cream of that kind than you do in the old gravity cream. Every person who has a separator should understand this point: that the separator should be thoroughly cleaned every time you use it. That old saying, "Cleanliness is next to godliness," is as true as sunshine.

Prof. Dean: I think we should sound a note of warning in those districts where the whole milk creameries are possible. We are finding a tendency on the part of the patrons to insist on delivering the cream. There are certain sections of the Province of Ontario where only the cream-gathered system can be operated to advantage, but I think it is a great mistake on the part of some of our creamery men to insist upon changing from the whole milk creamery to the separator plan. In connection with our dairy school, we had to stop taking in the cream because we could not afford to risk the reputation of our school by making the butter from the cream; and I told our instructor that rather than take in the cream I would shut up the dairy school. The man who collects the cream came to my office about a week ago, and said he would like to start hauling again, and I said he could do it on two conditions. The first was that he was to deliver only first-class cream, and the second that if the patrons who were sending the cream were willing to take suggestions from our instructor or Miss Rose. We are willing that she should go and show them how to take better care of the cream. I told him we could not take the cream into our dairy school unless it was better. I think it is one of the greatest mistakes we make in Ontario of going into the cream gathering system instead of the whole milk system. (Applause.)

Prof. McKay: I hope you do not understand me as advocating the gathered-cream system instead of the whole milk system. In the large creamery at Tripolin, Denmark, they tried the method of using skimming stations, and then shipping it to the central plant, but they found their butter was not taking as well in the English market; and the result is that they have gone back, and they have now made the skimming stations into whole milk plants. That will show you how particular the Danes are in guard-

ing their reputation. The whole milk system has been the principal cause of giving them the high standard they have in the English market.

A Member: I took over a creamery last April and gathered-cream was coming in in very bad condition. It was being sent by intelligent people, but they had been allowed to keep the cream sometimes a week and a half. When I took over the creamery I was told I would have to remedy that matter, and I went to work to do so. I refused to receive any cream that was not right, and a number of patrons said, "Well, if you won't take it the next creamery will." But the majority of them came to our views, and now they have an interest in the butter that is turned out from that creamery, and the others who said they would go to the other creamery are coming back to us.

The Chairman: I think the solution of the whole question is in the hands of the buttermakers. We are right up against that question. The cream-gathered system has come to stay in this country, so far as I can see, because the farmer wants his skim-milk at home. The question then, is how are we to improve the quality of the butter sent to the cream-gathered creamery. I think myself that the cream can be sent to the central creamery and made into as good quality of butter as in the whole milk creamery. We have seen where the whole milk creameries have gone out of existence because the farmer insisted upon having his milk. Another question is the cost of the haulage, and that has got to be a serious question. The intelligent buttermaker can get his patrons to send him the best quality of cream if he goes after them in the right way.

PRIZE WINNERS OF BUTTER.

Winter Creamery.

1st.—W. A. Bothwell, Hickson.
2nd.—Jno. Cuthbertson, Sebringville.
3rd.—W. P. Stacey, Fullarton.
4th.—E. M. Johnston, Innerkip.

October Creamery

1st.—W. Waddell, Kerwood.
2nd.—T. Scott, Wiarton.
3rd.—J. T. Ross, Holmesville.
4th.—Owen Sound Creamery Co., Owen Sound.

Ten One-Pound Prints.

1st.—W. A. Bothwell, Hickson.
2nd.—B. Gilholm, Bright.
3rd.—T. Scott, Wiarton.

Specials.

Lactone Cheese Color.—W. A. Bell, Pine River.
Lactone Butter Color.—Geo. Balkwill, La Fontaine.
E. B. Preservaline.—T. Scott, Wiarton.
Alderney Butter Color.—1st: W. W. Waddell, Kerwood; 2nd: W. A. Bothwell, Hickson

DAIRYING IN CANADA.

By J. A. Ruddick, Dairy Commissioner, Ottawa.

I do not know that I can speak of anything that will be of greater benefit to you to-night than to give you in as brief a form as possible some figures gleaned from the last census of Canada, showing some of the progress of the dairying in this country, and I think it will be of some interest to those in Ontario to know something of what is being done in the other provinces. I am going to make use of two or three charts, which will perhaps help you to understand the figures I will give you.

Once in ten years the census in Canada is taken, and the last two census years give us some very interesting information along this line.

Cheese Made in Canada

Province.	1890	1900	Increase.
	lbs.	lbs.	lbs.
Ontario	7,569,338	14,968,922	7,599,584
Quebec	2,918,527	12,874,377	9,955,850
Prince Edward Island	48,448	567,802	559,354
Nova Scotia	47,675	127,007	79,332
New Brunswick	29,152	245,695	216,543
Manitoba	105,887	416,272	312,385
North West Territories	17,322	156,537	139,315
British Columbia	3,530	105,690	102,160
Total	10,697,879	29,462,402	18,764,523

Cheese Factories and Creameries in Canada.

Province.	1890		1900		
	Cheese Factories.	Creameries.	Cheese Factories.	Creameries.	
Ontario	893	45	1,061	103	168
Quebec	617	111	1,207	445	340
Prince Edward Island	4	.....	15	5	27
Nova Scotia	14	2	15	8	10
New Brunswick	9	1	49	13	6
Manitoba	23	8	49	26	3
North West Territories	4	3	2	21	.....
British Columbia	1	.....	.....	8	.....

Some County Instances.

County.	Number of Factories.	Value of Product.	Amount per Factory.	——
Dundas	67	$929,950	$13,897	$4 14
Glengarry	74	612,141	8,272	2 21
Leeds and Grenville	105	1,340,240	12,764	2 25
Hastings	103	1,092,408	10,605	1 43
Oxford	43	594,227	23,256	2 08
Perth	27	574,026	22,008	1 32
Russell	80	519,594	7,175	1 57
Beauce	148	.....	3,510	74
Shefford	62	593,354	9,567	1 80

We are making progress along these lines, and also along other lines, and I could not but help thinking to-day when listening to the papers, that we were making considerable progress in ability to discuss these questions which come before us at the meetings. It is a good many years since I began attending meetings of this Association, and I think it is some 25 years since I attended the first, and looking back I can see a great difference in the way the discussions are carried on, and in the personnel of those who take a leading part in the discussions. At that time there were very few local men who took a leading part in the discussions, and yet to-day your programme is made up very largely not only of local men, but the younger element of dairymen in this country, and the discussions are received with every attention. We had one of the most excellent papers I ever listened to from Mr. McDougall, who is one of the younger men coming to the front in dairying work in this country. I do not think I am outside of the mark when I say it is not very many years ago when young local men would scarcely be listened to at all in connection with anything of this kind.

I remember one time a cheesemaker, who was well-known in the southern part of the country, gave a paper, and I remember hearing the boys afterwards discussing this man's paper. Just simply because he was one of themselves they did not care to listen to it, and I am very glad to see that that sort of thing is something of the past.

We are making considerable progress in the matter of buildings. I do not know that you have done as much, and I do not know that you need to do as much as they are doing in the eastern part of this Province. In the Belleville section in the last two or three years they have made very great improvement in the condition of the buildings and the equipment of the factories, and the Chief Instructor, Mr. Publow reports that the factories that were syndicated in Eastern Ontario made an expenditpure of over $80,000 in improving the buildings and plant.

There are some ways in which, I think, we are not showing the same rate of progress, and it seems to me that there is not the same progress being made in the improvement of the dairying stock for the production of milk, and the average cow is not producing as much as she should. I believe that is one of the most profitable fields for improvement, and for enlarging the profits of the dairymen of this country; and I expect that during the next few years, we will make a very strong effort to bring to the notice of the dairymen of the country, as to how much room there is for improvement along these lines. We made a little effort in this direction at Ottawa by conducting what we call a cow census of the Eastern Townships last summer. We tested the yield of milk of some 1,400 or 1,500 cows, and gave the result of the test to the owners with the view of showing them what a great difference there is in the individual cows. I do not think there is any phase of dairying of so much importance as this.

I was rather sorry to notice, in making comparisons, that the cheesemakers were not as well paid in 1900 as they were in 1890, and that should not be so. I feel quite strongly on that point. We must encourage them to do good work by paying them better salaries than they are paid at the present time. The cost of the raw material, and everything used in connection with the manufacture of cheese is increasing. The cost of boxes is going up every year, and there should be a corresponding increase in the rate for manufacturing the cheese. If we are to have improved buildings necessary to securing the cool-curing of cheese, we must have a higher rate for manufacturing, and that is getting to be a very serious question. I know in Eastern Ontario and Quebec, it is a very serious matter to them as to how

they will continue to make cheese at all at the price they are getting. I do think the cheese and buttermakers have done more than any others to raise the standard of the business, and yet they do not seem to get the recognition that they should.

The Chairman: I am sure we have listened with a great deal of pleasure and interest to the address of Mr. Ruddick to-night. I was just thinking while he was giving us these figures regarding the immensity of the dairying industry in Canada, that if we could remember these figures we would not forget that while the dairy industry does not appear to be very much in the minds of some people in Canada, yet according to these figures it is certainly one of the greatest industries of our country.

We have now reached a very pleasant part in our programme to-night. We are delighted, I am sure, as dairymen to have with us to-night on the platform our esteemed and honored friend, the Hon. Mr. Ballantyne, who is once more able to be among us in convention assembled. Mr. Ballantyne needs no introduction to a dairy audience in the city of Stratford, nor to a dairy audience in any part of Canada. He is known from one end of the country to the other, and not alone in Canada is his name honored, but also across the water, where our Canadian cheese has gained a high place and occupies such a high position, and Mr. Ballantyne's name has been connected therewith. He has consented to address us to-night, and he has also consented to present the Challenge Cup to the winner, Mr. Schweitzer.

PRESENTATION OF CHALLENGE CUP.

By Hon. Thos. Ballantyne, Stratford.

It gives me the greatest possible pleasure to be with you here to-night, and to have been requested by the Board of Directors to perform the very pleasant duty of presenting the Challenge Cup to the successful competitor.

My health has not been so good as I would like it to be, but I could not resist the temptation to accept your invitation to be with you to-night, among other reasons because I am possibly the only one that was present at the first convention that was held in 1868 in the town of Ingersoll. I was present at that convention, and for many conventions afterwards, doing my best in every possible way to develop this industry. It was not then the flourishing industry it is to-day. It was not then recognized as an important part of the agricultural products of the country. I remember the time when meetings had to be held in order to establish factories, and we had to have speakers to attend these meetings to discuss the matter fully and fairly. My first knowledge of western factories was in attending these meetings. So strongly was I impressed with dairying that I took a great interest in these meetings, as I thought it was the one thing that would remove the mortgage from the farm, and I was afraid of being suspected of having some ulterior motive for attending them. I attended the first meeting held in the county of Huron and the first meeting held in the county of Bruce, and I would not allow them to pay my expenses, because I was frightened they would think I was working for pay. I was sure the industry would succeed. That was the result of my experience and observation, and it is the result of my experience and observation to-day: and I do not know where there is a farmer, who is engaged in the production of milk for making butter and cheese, who is not making money out of it. At first they lived in log houses

and had log barns, but their families have since grown up, and they have been educated, and they have each one hundred and two hundred acre farms, and live in large brick houses, and they are not ashamed to trace it back to the cow. It is true it is hard work, it is drudgery, but it is one thing in connection with the farm that you have a certain income from all the time.

In those early days our conventions were of a different character to what they are to-day. At our first convention we were indebted to our neighbors from the other side for the speakers. There was always the freest interchange of opinion among the dairymen. There was always a reciprocity there. At that time we depended upon them almost exclusively, we knew nothing of associate dairies, nothing of cheese factories. Jesse Williams had the reputation of making good cheese, and he sold his product at a good price, and his son George was afraid he might not make cheese equal to his father, and he brought the milk to his father's farm, and that was the beginning of the cheese factory system. It was confined to one county at first. The late Hon. C. A. Willard took great interest in it, and the late Mr. Farrington, who came and settled with us, took a great interest in it, and I know of no man who assisted us more than he did. We did not have large grants from the Ontario Government in those days. We were not able to spend much money, and we did not know what to do with the grants we got. We had no men to teach them as we have now, but we were able to go on and improve from time to time. Then came the great Centennial Exhibition of 1876 in Philadelphia, and this was the first time we entered into competition with other countries, and we made a successful exhibit, and kept up a continuous display. The late Mr. Caswell and myself were appointed a committee, and we undertook all the work in connection with it, and we never asked our own expenses. I notice that it has been said here that it is the first time that the prize was ever awarded for something perfect. I do not know that the same goods would be considered perfect, but I am just going to remind you that at the Centennial Exhibition I was awarded the Gold Medal for a plus-perfect cheese (applause), and that cheese was made in a factory not one hundred miles from here. It was awarded for the best cheese on exhibition, and the cheese was scored plus-perfect. I do not say that to depreciate the cheese that has won the first prize here, because that cheese that was awarded first prize then and was scored plus-perfect, probably would not be plus-perfect to-day. The maker of the cheese that won the first prize in Philadelphia was Tom Grieves (applause), and he is still making cheese (applause), and no more reliable factory is to be found, than the factory he has superintended for a great many years.

We have avoided some of the dangers, some of the rocks and quick sands to which we are liable. I remember when the making of filled cheese was introduced, and you all know what that means. It means taking the butter-fat off the milk and substituting for the butter-fat some other kind of fat. We took strong grounds against making that kind of cheese. We knew in the long run it would destroy the trade. Fortunately for us we took the position that we would not have it, and I am not aware that one pound of filled cheese was ever made in Canada, in fact I can say that a pound has never been made in Canada. (Loud applause).

During the past year, as most of you are aware, some Canadian cheese was seized in Hastings, England, which was by the local analyst pronounced to contain a large percentage of some foreign fat. The dealer who sold it was found, and on enquiry being made as to where it came from, we had the matter investigated, and it was found that it contained an extra percentage of fat. The cheese were extra rich. I happened to have shipped the cheese to

the customer, and we had affidavits from the men at the factory, and we had affidavits from the shippers, and we proved conclusively that it was a pure cheese, and the case was taken to Somerset House, and the cheese was examined by one of the highest English analysts, and it was pronounced pure cheese, and that did us the greatest possible good. It advertised Canada more efficiently than ever before, and the fact was made known that not a box of cheese could possibly be made in this country containing foreign fat, because you know that if it were made in any factory it would be known, and the parties would be punished, because it is contrary to law.

I have now the very pleasant duty of making this presentation. Let me say, that it is quite possible that in a very ordinary factory they may make some very fine goods. I know this gentleman who has won this trophy, and I know his history, and I know the character of his goods. We have handled possibly nineteen-twentieths of all he has manufactured. I knew him when he was learning the trade. It was on my recommendation he was appointed to that factory, and the first year he was there, finding that his goods were fine, we had him instruct a maker, who was running a factory a short distance from him. I told this other maker the best thing he could do was to go down and spend a day with Schweitzer, who made very fine cheese; and he went down there, and the character of his goods was changed. This is not the first trophy Mr. Schweitzer has captured. Here is another one on the platform, the National Challenge Cup of the Toronto Association, which he won last year. It may be said in connection with certain things that are placed on exhibition, such as horses and cattle, that the judges are apt to know who the owner is, and unconsciously influence their judgment, but in connection with cheese, I think I am safe in saying that there is no possibility of the judge having the remotest idea whose goods they are. I have judged possibly as much as anyone, and I have always taken care that there was no possibility of knowing whose goods they were, and they are always judged according to merit. You cannot make perfect goods from imperfect material, and it is just possible that the quality of the milk has assisted Mr. Schweitzer; but you must also remember that you can make bad cheese from perfect milk, and unless a true process for making cheese is observed, you will not make good cheese.

I have now very great pleasure, Mr. Schweitzer, in presenting you with this Challenge Cup. The fact that my factory took that gold medal at Philadelphia was more to me than I can tell; and then man who has skill enough to achieve such high success in cheese making as you have, deserves a reward. (Applause). In making cheese you have to deal with a perishable article, and you can imagine how important it is that everything should be done with the greatest care. You have to watch the development and observe the greatest cleanliness. I have great pleasure in presenting you with the Cheese Buyers' Prize, and I hope you may be successful in getting it a second time, so that you may keep it.

At this point the audience rose and sang, "For He is a Jolly Good Fellow."

Mr. Schweitzer: I certainly thank the Association for the honor, and for presenting this trophy, and I will try and do my best to win it again. (Applause).

Mr. Smith, of Woodstock, followed in a few congratulatory remarks.

AGRICULTURAL DEVELOPMENT.

By G. C. Creelman, President Agriculture College, Guelph.

At this late hour I would not dare to perpetrate on this audience such a speech as I had prepared had I been called before you earlier in the evening. And it is only a few remarks that I would like to address to you just before we close, in order to send you home proud of the Province of Ontario, proud of the work in which you are engaged, proud of the work of your patrons, and pleased that you have been allowed to live in these early days of the twentieth century.

Surrounded as you are by good farms and farmers, you have been able to reach that state of perfection where we may pat ourselves upon the back, and sit down and take things easy for the rest of our lives; but we are too prone to look upon the gloomy side and go about grumbling—too prone to make up our minds that we are not the salt of the earth, that the people of the past generations had a good deal better time than we have, and that the children coming up will have a good deal better time than we are having at the present time. Now, for fear that you should go away from this convention with not as good an opinion of yourselves as you ought to have, I want to call your attention to two or three things as I have seen them. Through my privilege of travelling through the Province during the last seven years as Superintendent of Farmers' Institutes, I am able to speak to you authoritatively and positively on the subject of agriculture, and also from the position which I now occupy, as President of the Ontario Agricultural College, for since Dr. Mills was called from that very responsible position I have been trying to fill one corner of his shoes. He has been called to a much more responsible position on the Railway Commission of this great country. It is not generally supposed that the railways of this country, much as they have done for it, have done everything for the farmers of the Province of Ontario that they might have done, and it is believed that the farmers of Ontario were especially favored when Dr. Mills, who for over twenty-five years had control of the destinies of the only school of agriculture in the Dominion of Canada, and one that is sometimes recognized as one of the best on the continent of America, was placed on that Commission, which has greater powers given to it than any Commission under the British flag.

We have at the Ontario Agricultural College 730 boys and girls in attendance, nearly all sons and daughters of the farmers of the Province of Ontario, and from a few outside places, because we have attracted pupils from other parts of the world. We have them from the Argentine Republic, and from the British Colonies in South Africa, and I want to say a word in regard to a young man who arrived at the college within the last ten days from South Africa. That young Boer told me that one of our former graduates, Prof. Palmer, was now in charge of the Agricultural College in Orange River Colony, and had advised him to come to Canada in order to get the best qualification for agricultural work.

The farmers of the Province of Ontario at the present day are more progressive than any other farmers in a like area anywhere else in the world, and I make that statement without hesitation. There are some countries and some Provinces that are doing better work along that line, but when we make this statement that without any appreciable increase in population and that without any appreciable increase of acreage, these same farmers have doubled their output, you will understand what I mean when I say they are the most progressive in the world. While there may be people who can grow

better potatoes and grow better tobacco, and grow more corn, and better corn, there is no country doing more, acre for acre, with all the varied industries than is the Province of Ontario at the present time.

We have passed the billion dollar mark. Mr. McKay spoke of a three-quarter billion dollars. How much is a billion dollars? A thousand million of dollars. How much is a million? A thousand thousand of dollars. What is the good of talking about that; we never get that amount ourselves, and it seems ridiculous to talk about that many thousands of dollars, and yet we have passed the billion dollar mark. That represents the value in Ontario of the farms, and farm buildings, and farm implements, and live stock, and so you can see we are a big business. The gentlemen whom I see before me are buttermakers or cheesemakers, but you are farmers first. You can see the farmer sticking right out of every one of you; you didn't go from the city to the cheese factory. Most of you came from the farms, and you are operating the factories. And you have come to this convention to get such information as you can get to help you to make more and better butter and cheese. It is very encouraging to know that Mr. Schweitzer has taken the trophy for making the perfect cheese; but it will not do for us to pat ourselves on the back and say, we are all right, because we are not all making perfect cheese, and we must go on improving until we make every cheese in the Province of Ontario perfect.

I will close by saying two things: Having reached the billion dollar mark; having doubled our out-put in ten years; having increased our luxuries, having got on Easy Street, as they would say on the other side of the line; having got where money comes from month to month; having got to that point, we can now pay a little closer attention to the two things which strike me as being rather out of touch with our prosperous conditions, and the first of these is our school houses in the country districts. This is where our children start, and I say without any hesitation whatever, that many of these rural schools are a disgrace to this great Province. I say that as an employee of the Government, and I say that in spite of the educational system which is working so estimably in the Province of Ontario. I say that in spite of the fact that the farmers are paying a good deal in taxes, and now that we have gone away from the stress and toil incident to making an ordinary living. I say it with the hope that we will give a little more time and attention to the improvement of our rural schools. The movement is already started. In our community we have five school sections united, and we send out vans every morning to bring the children into school. I went down there yesterday morning, and saw these children coming—some a distance of four miles—dry shod, as farmer children ought to come. It is not going to cost the farmer any more in taxation than the old schools did, and they get a better education than they did in the old schools. They have manual training, and domestic science is taught to all the pupils. (Applause).

The cheese factories, as a rule, are not a bit better than the school house. (Applause). Yours is not the factory that the horse detects before he gets over the hill. I have heard Mr. Publow say that in Eastern Ontario his horse refused to go near one of the factories, and I will leave it to you to answer why that horse would not go to that cheese factory. He turned off before he got to it, threw up his head and refused to go in that direction. I would like each one of you to go home, and say you were going to put a name on your factory—put it plainly on the outside—so that visitors will find out what it is. And it would be better still if you would put the name of the proprietor and the name of the cheesemaker; and better still if you would put up something in reference to the statistics—how many pounds of milk

received, and how many cheese made, and how many pounds received last year and how many cheese made. Put on it what the cheese industry is in Canada, and let the people know what is going on inside of our factories. Then get some nice letter-heads printed, and every time you write to me do not write it on some brown paper, or on the leaf of a scribbling book. When these letters come in I can always tell they are from cheese factories, because there is milk splashed on them. Get a nice letter-head so that I will be pleased to get a letter from you, and if you can get a photograph of the factory on your letter-head so much the better: and let us have such a view of these things and make us proud of our business, and make us more like the people of the old country, with their beautiful hedge rows and buildings. We are old enough to do these things, and if you are willing to do them we are willing to help you. We have our instructors and professors at the College, and we will send them out to help you, and if you will only do these things to help yourselves I will feel that my message to you has not been in vain.

FINANCIAL STATEMENT

For the year ending December 31, 1904.

Receipts.

Cash on hand from previous year	$ 466 47
Members' fees	382 50
Legislative grant	1,350 00
Instruction	29 95
Advertising	192 85
Refund Express and Bell Telephone charges	8 80
Sales of exhibits	980 04
	$3,410 61

Expenditure.

Grants to other Societies, Fairs, etc.	$ 200 00
Cash for prizes	540 00
Expenses for Convention or regular meetings	513 29
Officers' salaries, $171.50. Directors' fees and expenses, $255.30	426 80
Postage, stationery, printing and advertising	155 94
Expenses of Instructors	4 50
Purchase of exhibits	980 02
Cost of reporting	65 00
Legal advice	5 00
Auditors' fees and expenses	38 65
Office furniture	146 83
Telegrams and telephones	53 26
Office rent and other expenses	91 15
Express charges	4 70
Expenses special meeting	2 40
Total	$ 3,227 54
Balance	183 07
	$ 3,410 61

Upon motion the report was received and adopted.

LESSONS TO BE LEARNED FROM REPORT ON METHOD OF MAKING THE CHEESE AND BUTTER ON EXHIBITION.

By G. H. Barr, Chief Instructor, London.

I prepared the notes that I have on this subject after twelve o'clock last night, and I will not be able to give as concise and detailed a report as I would have liked. I came to the conclusion yesterday afternoon that it was almost impossible for any man to make a report on the exhibits as fully as it might be made unless he had four or five hours to do it. To go around and examine every cheese and the reports would be a very big undertaking. What I have this morning are a few notes on how the prize cheese in each class were made, and then the cheese that scored the lowest number of points in each class. I think there are some lessons to be learned, although probably not as much as we would expect, for the simple reason that we have in our exhibits what I think is an excellent lot of cheese, and we cannot expect a very great variation in the method of making, when there are very few cheese scoring under 90 points. I will commence by reading the report of the method of making the cheese that scored 100 points, which is as follows:

Flavor of milk: Sweet and clean.
Acidity of milk when delivered: ————
Quantity of starter used: 24 lbs. in 5,318 lbs. of milk.
Pasteurized or unpasteurized starter: Pasteurized.
Amount of color used per 1,000 lbs.: ———— Brand: ————
Amount extract used per 1,000 lbs.: 3 oz. Brand: Chas. Hansens.
Rennet test setting: 26 sec. Acidity: ——— per cent.
Time from setting to cutting: 33 min.
Time from setting to cooking temperature is reached: 1 hr., 40 min.
Style of agitator or rake used: McPherson.
Time from setting to dipping: 3 hr., 10 min.
Hot iron test at dipping: ——— Acidimeter test: .195 per cent.
Condition when packed in drainer: Dry with .290 per cent. acid.
Time from stirring is finished to cutting first time: 20 min.
How deep piled: 2 layers.
Time from dipping to milling: 2 hrs., 20 min.
Kind of mill: Barnard curd mill.
Acid at milling, hot iron: ———— Acidimeter: .85 per cent.
Washing temperature of water: ———— How much: ————
Acidity at salting: 1.19 per cent.
Amount of salt per 1,000 lbs. milk: 2½ lbs.
Time in press before dressing: 50 min.
Judges' remarks: ————
Name of factory: Avondale. Maker: Oscar Schweitzer.
Address: Brocksden.
Date of making: September 22nd, 1904.

To my mind there is not a mistake in the method of making that cheese. I felt a little afraid when I found this cheese had scored 100 points, and thought that the report on the method of making would not be according to our ideas; but I am pleased to know that this report is as near the lines our Instructors are working as it is possible to be.

All the prize cheese in this section were made from milk in which pasteurized starter was used, and I want to draw your attention particularly to the amount used, which was a little less than one-half of one per cent.

The rennet test at setting is from 22 to 27 seconds. I would say that the milk from which these high scoring cheese are made has all been set comparatively sweet. The time from setting to dipping is from 2 1-4 hours to 3 hours and 10 minutes, and they are all stirred dry and fairly dry at dipping. The time from dipping to milling runs from 2 hours to 2 hours and 30 min-

utes. The acidity of the curd at milling is given from 1 to 2½ inches. Acidity at salting 1.19, salted from 2¼ to 2½ lbs. per 1,000 lbs. of milk.

One of the cheese scoring lowest in the White September was made without culture, the others scoring 88 points were made with pasteurized culture from one-half to three-fourths of 1 per cent. being used. Curds were in the whey 2 hours and 40 minutes and 2¾ hours. Acidity about the same as the high scoring cheese.

The only difference I can see between these cheese and the ones scoring the high number of points is in the quality of the milk and the quantity of starter used. The quantity of starter was more, and the quality of the milk was not as good. Now, I think this is a good lesson, and for my part I am quite free to say that one of the weak points in making many of our cheese is the use of too much starter, and ripening the milk too much before setting, and we see the result carried out in the scoring of these cheese.

The 1st, 2nd and 4th prize cheese in September Colored were made with pasteurized culture, less than one-half of 1 per cent. being used. Curds in whey from setting to dipping 2¾ hours and 3 hours, time from dipping to milling 1 hour and 40 minutes to 2¼ hours with 1 inch and 7 per cent. of acid at milling; 2¼ and 2½ pounds of salt used. The third prize cheese was made with 1 per cent. of unpasteurized starter. Time from setting to dipping 3 hours and 5 minutes, 1½ inches acid at milling, 2½ pounds of salt.

Two cheese scoring 86 points in September Colored were made without using culture. The milk is reported as good and fairly good. They were in the whey 2 hours and 30 minutes, and 3 hours and forty minutes, and the acidity is reported about right all through, at salting test was 1.1 and 1.2; amount of salt 2½ and 2¾ pounds to 1,000 pounds of milk. Two other cheese in this class scoring 86 points were made with pasteurized culture with nothing special about the rest of the reports.

In the October cheese the same features are prominent as in the September cheese. The cheese scoring the highest number of points are made from good milk in which about one-half of one per cent. pasteurized starter is used, and set when comparatively sweet; well cooked curds, stirred dry and fairly dry at dipping.

The reports of the cheese scoring lowest in the October classes are very similar to those scoring highest. Pasteurized culture being used in them all, the curds were cooked 2½ to 3¼ hours. The milk is reported as pretty clean and good; most of these cheese are scored off in flavor. From the reports it is not plain why this should be the case.

My conclusions from studying these reports are that good cheese can be made under various conditions and methods.

That a pasteurized culture plays an important part in making a prize winning cheese, but that pasteurized cultures have been used in many of the cheese scoring low, which proves after all that the milk must be sweet and clean when delivered at the factory if we are going to make fancy cheese.

The reports are remarkably uniform as to the methods of handling the curds, especially in the first prize cheese.

Very few reports give less than 2½ hours from setting to dipping, the majority being from 2½ hours to 3¼ hours.

The acidimeter has been used in making about half of the cheese exhibited. Thirty-one cheese were scored less than nine points for finish, and only three scored full.

I have not much to say about the butter because I have not been able to get as many reports from the buttermakers as I did from the cheesemakers.

First prize Winter Creamery scored 93¾ points. Flavor cream, good; amount of pasteurized culture used, 20 lbs. in 800 lbs. of cream; percentage butter fat in cream, 38; separator creamery with box churn, temperature of cream, 50 degrees when put in the churn; amount of color used ½ to 1,000 lbs. of milk; temperature of buttermilk when churning is finished 52; time churning 40 minutes; size of granules ⅛ inch in diameter. I judge that would be a little larger than wheat. My idea in asking for the size of the granules was to compare them with wheat or split peas or corn.

Number of times washed, only once; temperature of wash water 52; time from washing to salting 30 minutes; amount of salt per pound butter ¾ oz. of Windsor salt. Butter taken from the churn, spread on table worker, salted, then butter is turned on the other side and worked.

I have not any report of the low scoring butter.

The other report is, October Creamery 94 points, 34 per cent. cream, separator creamery, box churn; put in churn 50 degrees, ½ oz. butter color; buttermilk when churning is completed 52 degrees; size of granules, wheat; number of times washed, once, and temperature of water 52 degrees; time from washing to salting, 55 minutes; amount of salt per lb. ½ oz. Windsor salt; worked with Mason worker; sent to London Cold Storage immediately after making, where it was kept at a temperature of 10 degrees.

Comparing that sample of butter with the butter scoring lowest number of points in the October butter, which is 85½ points, there was a pasteurized starter used in this sample of butter; the per cent. of acid in the cream is not given; the fat in the cream is only 22 per cent.; it is a cream-gathering creamery; temperature at churning 56 degrees; and one hour from washing to salting is finished; the salt was put on in a combined churn, the butter worked a minute and let stand and worked again and let stand for some time (that is the usual way of working butter in the combined churn). Temperature of cold storage from 34 to 36 degrees. Now the chances are if that butter had been kept in as good storage as the other, it would have scored up very much higher. The main points of difference is cream-gathered cream and the butter kept at a higher temperature. The print butter was practically the same in most cases as box butter, so that I did not make any report.

WEAK POINTS IN CANADIAN CHEESE.

By R. M. Ballantyne, Montreal, Que.

The subject your directors allotted to me was: "The Weak Points in Canadian Cheese," and in discussing this matter, of course you will understand I am treating it entirely from a dealer's standpoint, from the standpoint of one who sees these cheese passing through Montreal from all the districts in Canada; because we get them from everywhere—from P. E. I., and Quebec and everywhere else where cheese are made in Canada, and also some cheese from New York State—and although I have not been in your factories for some four years past, I think I have seen as many cheese that come from your factories as anyone in the trade, because the cheese we buy from this section came into our warehouse, and I have every opportunity of examining them.

In discussing the weak points in Canadian cheese I shall not make an effort to cover the whole ground of Canadian cheese, but shall confine myself more particularly to what I consider the weak points in the cheese of Western

Ontario. Before going on to discuss the weak points, I wish to mention what I consider the good points of your cheese, for I consider it just as necessary that you should understand what the trade considers satisfactory cheese, as that you should know what they consider unsatisfactory.

The most of the cheese from this district are well made, that is, they are close in texture, of uniform size, the curd having been measured or weighed, and practically the whole district uses a 14½ inch hoop into which enough curd is put to make an 80-pound cheese and a cheese of 80 pounds weight, made in a 14½ inch hoop, is of more handsome appearance than a cheese of the same weight made in a wider hoop. Your cheese are usually well finished; that is they have been turned in the hoop the morning after they were made, any unevenness trimmed off, and the cheese put back to press, which latter, no doubt, assists very much in producing close-boring cheese, and generally speaking your cheese are well boxed, the boxes being fairly strong and trimmed down before they leave the factory, so that they arrive at their destination with very few breakages indeed. In fact the general appearance of your cheese on arrival in England is better than the cheese of any other district of Canada; for in no other district is there the same uniformity in size of hoop, weight of cheese, and good boxes neatly trimmed down before shipment, and these good points have undoubtedly contributed quite largely to the favor with which your cheese are regarded in some parts of England.

In speaking of the quality of your cheese, I wish to divide the season into three parts: The spring season, before warm weather comes on; the summer or warm weather season; and the fall, or after the warm weather is over. I shall deal with them in the order of spring cheese first, fall cheese next, and will leave the summer cheese to be dealt with last, because it is in connection with your summer cheese that your great weakness lies.

Spring Cheese. The practice of making moist, quick-ripening cheese is generally approved of by everyone connected with the trade, especially in seasons when the early spring cheese has sold at high prices, and it was necessary to have the new cheese ready for the market at the earliest possible moment, if the high prices were to be taken advantage of. But in spite of the fact that these spring cheese have been especially made to produce a cheese that would ripen quickly, we have heard severe complaints from England that cheese were being shipped too green. Factorymen, in their anxiety to get all they can for their cheese, make sales as quickly as possible, to take advantage of the good prices before the market breaks, and the buyer says: "Well, if I cannot buy, some other buyer will, and I will lose my opportunity of doing business." When the purchase and sale is completed, the buyer finds it necessary to rush the cheese to market as rapidly as possible to save himself from loss, and, quite frequently, when there is danger of a declining market, cheese is being taken from the factories as soon as made and shipped to England. The weather being cool at that season of the year does not hasten the ripening process, and as a result they arrive in England in a green, curdy condition. The English buyer is also afraid of a declining market, and wishes to dispose of them as soon as landed, and which he offers them for sale his customer complains that they are too green and his expression of dissatisfaction soon reaches this side of the Atlantic, with the result that factorymen have frequently been urged during the hot weather not to ship their cheese so green, because complaints had been received from England, whereas these complaints referred only to the early shipments when the weather was cool and when the Englishman wanted the cheese for immediate consumption.

Fall Cheese. Your fall cheese are without doubt the best cheese made in Canada. They are very little, if any, inferior to the English Cheddar that commands such a high price in England, and it is to these fall cheese that you are indebted, as far as quality is concerned, for the major portion of the high esteem in which your cheese are held. It, therefore, becomes necessary that we examine these cheese to see wherein they excel, and if possible apply any knowledge we gain to the summer cheese, for the summer cheese will stand a lot of improving. Now we find these fall cheese of a more meaty texture and cleaner in flavor. The two essential points in a cheese are here combined almost to perfection, and the question is: "Can they be produced in the summer cheese?" If not, why not, and if they can, by what means can it be done? We have sometimes heard that we required a larger percentage of fat in the milk if we are to have a meatier cheese, but we find Quebec cheese quite as stiff as any, and from sections where the milk will test nearly one per cent. richer in fat than the milk in this section.

Summer or Hot Weather Cheese. Your summer or hot weather cheese are usually too stiff, with somewhat the character of part skim cheese, and when they have been carried in the factories for some time, as they usually are, they afterwards develop very bad flavors. In fact, the only very bad complaints I received from England about bad flavored cheese, during the past summer, were about cheese from this section. Now, I believe both of these faults can be largely remedied, if not wholly overcome, and I will revert for a moment to my former reference to Quebec cheese. I said that milk in the Province of Quebec was richer in fat than the milk in this section, and that we sometimes received stiff, hard cheese from the factories handling this milk. It is the practice of cheesemakers in the Province of Quebec to raise the temperature of the whey up to over 100: sometimes as high as 104 is considered necessary to produce a sufficiently firm-bodied cheese, especially in factories where the practice is to hold the curd in the whey for a much shorter time than you do. And if higher temperature can be used, as it is in the Province of Quebec, to produce a firm-bodied cheese, could not a lower temperature be used in this section to produce a more meaty cheese? The more I see of cheese from the different sections, and learn of the methods under which they are made, the more I am convinced that temperature in the process of manufacture, and temperature after the cheese are made, are the important factors in both texture and flavor.

I have said that your summer cheese frequently developed very bad flavors, and I am convinced that the principal cause of the bad flavors that develop in your summer cheese lies in the practice that prevails in this section of keeping the cheese for some weeks on the shelves of a warm, sometimes hot, curing room, together with the fact that your cheese have to be shipped a long distance by rail. If these two difficulties can be overcome I can see no reason why you should not have summer cheese of equal quality with the fall cheese, and I may tell you that the necessity for improvement is becoming greater every day, for other sections are making very rapid strides, and only those who keep in front are likely to survive. The second best is not good enough, and especially is this true of a section such as this, that has been at the top, to which second place would be humiliating and lead to decay.

If the cheese are to stay as long in the factories as they do, then some very radical changes will have to be made in the factories. In the light of modern knowledge, cool air ducts, or a few chunks of ice in the curing room can no longer be considered as overcoming the heat of summer to any sufficient extent, as the cheese must be kept at a lower temperature than can be

obtained by these methods. You must go a long way beyond cool air ducts and a few blocks of ice if you are to save the reputation of your cheese, as they must be held at a low temperature all the time, from the day they are made until they reach the English customer, and to do this some very radical changes must be made.

Any system that will produce low enough temperature can be made to answer the purpose, but I know many of you would find great difficulty in cutting, teaming and storing enough ice, for in a properly insulated room the space occupied by the ice will be almost as large as the space it is required to cool, and while it is quite possible to provide suitable rooms and to put in a sufficient stock of ice, I fear no general and satisfactory progress can be made if it is left to individual effort at each and every factory. I would strongly urge than some combined effort be made to provide suitable places at centres, or the cold storage now in existence could be utilized as far as it will go, after which more accommodation would be provided as there was demand for it.

If it were possible to have one or two central markets to which all the cheese could be shipped for storage and sale, it would simplify the business very much, and I am quite certain very favorable arrangements could be made with the railways. Buyers would save a large sum in expenses, and you could depend upon competition to give the benefit of this saving to the producer. The factoryman would not be required to hold his cheese in the factory awaiting a favorable opportunity to sell, after which he must wait until the buyer comes to inspect, and then a still further delay must take place waiting for some cars in which to ship; but instead the factory would have regular shipping days, on the same days of each week from spring until fall. When he sold his cheese he would make almost immediate delivery, and many vexatious disputes that now occur would be avoided. It seems to me that a system of this kind could not help being of advantage to everyone connected with the business. The saving in shrinkage, the saving in buyer's expenses, which would certainly go to the producer because competition would take care of that, the saving of vexatious disputes would assist in putting the business on a very much improved basis.

The progress that has been made in the east since I went to Montreal is simply astonishing, and England has not wholly wakened up to the improvement that has been made there. In the East the practice of a very large number of factories is to make a regular weekly shipment of all cheese that are about six days old. They go to Montreal and go into the cold storage at once. The difference in the East from the factory to Montreal is not great. We buy cheese in Brockville market on Thursday, they are shipped on Friday and on Saturday they are in our storage. Your system is so far behind and your cheese are so much longer in hot factories that you can never hope to have a clean flavored cheese such as they have by your present method, and unless you get clean flavored cheese you will be left, your name will become bad because the other people have been improving so much, and when you get behind you will know the effect of it. (Applause).

The Chairman: I am sure we have appreciated very much the excellent paper and advice Mr. Ballantyne has given us this morning, and I think it behooves us to give heed. He has told us some things that are very pleasant to our ears, and he has pointed out some other things that need our most careful attention. He has told us that we make at a certain season of the year without doubt the best cheese made in Canada. At other seasons of the year not so good. He has pointed out some means by which this would be

obviated to a very large extent in providing better curing-rooms or better equipment for keeping and controlling the temperature in our cheese curing rooms. It is a gospel that has been preached in part throughout this convention, and has been preached for some years, and we are heeding the warning we have been getting. Mr. Ballantyne says differently. If the practice we are pursuing is continued, there is danger of your taking the second or lower place, and he has stated that would be very humiliating, indeed. Now, I see no reason why we, as dairymen, should take the second place, or should recede from the place we now occupy, and while we are able to make the finest cheese in the cold weather, which proves to us that so far as the science of cheese making is concerned, we have acquired that science, the fact is that we can make fine cheese at any season of the year, that is so far as the science is concerned that is acquired; but we usually have not the facilities to overcome warm weather, and through our lack of providing ourselves with these facilities there is danger of our having to take a lower place. Now, that is a serious situation. It is one that ought to occupy our most careful thought and attention, and I trust that the words Mr. Ballantyne has spoken to us this morning, coming as they do from the man who has a thorough knowledge of what he is talking about, will be heeded. Are you going to go home from this convention to pursue the methods you have been following in the past, without putting into practice some of the things that you believe to be true? I am satisfied we all believe what Mr. Ballantyne has said, and will we not act upon it? I ask you to take it into your careful and serious consideration, and let us go out upon this year 1905 with renewed resolves that we will succeed in taking, not the second place, not the lower place, but the higher place, not alone in the making of our fall cheese, but from the beginning to the end, and Mr. Ballantyne will be able to come back to us and say next year, you have the finest cheese made in Canada at any time of the year.

A MEMBER: Have you had any experience with cheese from the cool curing-room at Woodstock?

Mr. BALLANTYNE: Yes, we had a shipment of September cheese from both Woodstock and Cowansville. The people in England were very much in favor of the cold curing-room cheese, because they were cheese of better texture and better flavor. The only point they were in doubt at all about—and I would not like to give it out as an objection—was regarding the paraffine. Most of these cold-cured cheese were paraffined, and in England some of the dealers are inclined to say that there is so much paraffine, that when the cheese were cut they would lose weight. I think the saving in shrinkage will pay for any loss that may possibly be from any source of that kind. There is no question about it that these cool-cured cheese are better cheese than the cheese that were not in the cool-curing room. At the cool-curing room they took one cheese out of the same batch kept in an ordinary temperature, and another cheese of the same batch in the cool room. These cheese were sent to us afterwards to ship for examination at Montreal and in England. We have no exact way of comparing the cool-cured cheese with the cheese that come direct from the factories, and my own opinion is that last year being a cold year there was very little difference whatever. The Eastern people send their cheese to Montreal at once, and they have no opportunity of getting bad in their factories.

A MEMBER: I want a comparison of the Brockville cold-cured and the Woodstock cold-cured.

Mr. Ballantyne: You have different cheese in each case. The cheese from this section were too soft; the Brockville cheese were not so stiff; the flavor in both cases were right.

A Member: How long do they generally hold them in the factory in the Brockville district—ordinary cheese?

Mr. Ballantyne: The regular practice is to ship every week. In the Brockville section they ship on Friday, and on Friday they ship all the cheese that come out of the hoops on Monday.

The Chairman: Is it not a fact that our summer cheese are altogether too stiff? Why are they made so? Is it not that we as cheese makers are afraid that if we make them meaty and silky in texture, without having any cool weather, that they will get out of condition owing to the improper place we have to keep them? I believe this is the secret we want to get hold of in order to get fine cheese the whole season through—places to keep the cheese when they are made, and then they would be right all the season.

PRESERVATIVES IN BUTTER.

Moved by Mr. W. K. McLeod, seconded by Mr. John McQuaker: "That whereas the use of preservatives in butter is coming into general practice in Canada, and to secure protection against the sale of any preparation that might be injurious to consumers, we recommend that all such preparations be placed under Government inspection." Carried.

RAILWAY FREIGHT RATES FOR DAIRY PRODUCTS.

Moved by Mr. T. Ballantyne, jr., and seconded by Mr. I. W. Steinhoff: "That whereas it has been stated before this Convention that there still exists irregular and apparently excessive freight rates charged by railway companies in Canada on cheese and butter, and particularly in the district north of the main line of the G. T. Railway, in Western Ontario, we hereby authorize the Directors of this Association to co-operate with the Dairymen's Association of Eastern Ontario and the Montreal Produce Merchants' Association in presenting this question to the Railway Commission for investigation." Carried.

Mr. McLaren: What about the Railway Commission?

Mr. Steinhoff: That is the object of this resolution—to take it up with the Railway Commission. The matter is already on foot, and considerable evidence has been obtained, and there has been a committee appointed by the Association, and they are making preparations all the time for future investigation.

IN MEMORIAM.

Moved by Mr. R Johnston, seconded by Mr. W. K. McLeod: "That it is with great regret we have to record the death of one of the pioneer dairymen of this Province, Mr. J. A. James, who was one of the ablest advocates of the best principles of dairying in the Province, who was also one of the oldest members of this Association, having represented you on your Board of

Directors for a number of years, where his counsel was always on the side of progression. That this Dairymen's Association, in convention assembled, express their sorrow at the death of one of their comrades, and that a copy of this resolution be forwarded to his bereaved widow."

Mr. JOHNSTON: I might say that in connection with this last resolution, that a number of the younger members of this Association have not met Mr. James. He is one of the old members, and having worked with him for a number of years, I can readily understand the loss the dairymen have sustained in the death of Mr. James. He was always giving us good advice.

The CHAIRMAN: It is not necessary for me to enlarge on the resolutions, they having been read. With regard to the last one, I would just like to add a word or two because it has been my privilege to know the late Mr. James for a great number of years. In fact he was one of the workers on the Board of Association when I came on, some 13 years ago, and in the early years of my connection with the Association, he was one of the most active members. He was one of the most painstaking members in attending the meetings, and carrying on the work of the conventions.

REPORT OF NOMINATING COMMITTEE.

The report of the Nominating Committee was received and adopted. The list of officers elected will be found on page 4.

The CHAIRMAN: I will now take the pleasure of introducing to you your new President, and it affords me a great deal of pleasure indeed, to have the privilege of introducing Mr. Johnston as your President for this year. It is not necessary that I should say that he will make a good one, because you all know him as well as I do. It has been my privilege and pleasure to work with him for a number of years on the Board, and I know that he is worthy of the confidence that you have placed in him to-day, and in placing him in the highest gift in your Board you have done well. I have now great pleasure in introducing to you Mr. Robert Johnston, of St. Thomas, as President to the Dairymen's Association of Western Ontario for the year 1905. (Applause.)

Mr. ROBERT JOHNSTON, President-elect: I cannot find words to express to you my gratitude at the honor you have conferred upon me in electing me to fill the highest office in the gift of the Association. I fully appreciate the honor it carries with it, coming as it does from one of the most representative bodies in Ontario, barring none, and I feel that my abilities do not warrant you in selecting me for this office; but as it has been your pleasure to ask me to represent you in 1905, I will place myself and what ability I have at your disposal, and with your co-operation and with the co-operation of the able staff of officers that you have elected, I know that we will carry on good work, and still improve and still go on, and make Western Ontario the banner province of the world. I thank you for the honor you have conferred upon me, and I will try and prove it has not been misplaced. (Applause.)

The first duty that will devolve upon me is that of moving a vote of thanks to our late President, who has been one of the best presidents who has ever sat in the chair, barring none. He has told you, with considerable flattery, of my work in connection with the Association; but I can say, and say truly, that a more painstaking officer than Mr. Paget you have never had, and a more able one you have never had, and I have very much pleasure in moving a vote of thanks to our retiring President.

Mr. STEINHOFF: It is a great pleasure for me to second this resolution. The President who has just vacated the chair is one who not only during the past year, but all the time he was connected with the Association, has been doing his very best. He has been loyal all the way through, and we only regret that we cannot still keep him in the chair; but I am sure we will still have his hearty co-operation in the work of the Association, and it gives me great pleasure to second this motion."

The motion was carried by a standing vote.

Mr. PAGET: I thank you, very much, for the appreciation that you have shown, and I trust that while I am retiring from the active Board that my life may be spared to continue to have the same interest in the future that I have had in the past in the welfare of the Dairymen's Association of Western Ontario.

DISCUSSION ON INSPECTION AND CHEESE MAKING.

Mr. G. H. BARR: We are through with the work of 1904, and I think, generally speaking, we have had a very fair year, both as regards production of cheese and butter and the quality. I think I probably realize our position in Western Ontario as producers of cheese and butter in comparison with the other Provinces of the Dominion, as well as any others in the West. I know that when Mr. Ballantyne said our strongest competitor was Eastern Ontario, that it was true; and if there is one thing I am afraid of it is that we will take second place to Eastern Ontario, and I am very anxious that we should keep the position which I believe we rightly hold to-day as being first as producers of fine cheese in the Dominion of Canada. I feel very sorry when we hear it reported, or even hear it hinted at, that Eastern Ontario is making better cheese than we are in the West. I do not think there is any reason in the world why that should take place. I will not say anything about the ability of the men in the East, but I will say that they cannot have any better ability among the cheesemakers than we have in the West. We have always been able to make fine goods; but one thing has pained me to a certain extent this year, and that is our patrons and factorymen seem rather unwilling to pay anything towards the work of instruction. I often think that if we had all this work cut out, where would we be? I would like you to look at it in that way. It is only a mattter of $10.00 or $15.00 a year from the factories. If we will not do anything towards this work, and help the Department of Agriculture to carry it on, where are we going to be? The other part of this Province is paying more for this than we are. Quebec is doing great work, also the other Eastern Provinces. We cannot afford to stand still or go back. As an Association, we are anxious to extend the work of instruction, and it is only by co-operation with us that we will be able to do the best work. It is only by close co-operation that we are able to effect improvement; but we cannot do that unless you will assist us. For the year 1905 the arrangements have been practically all made. We have a staff of Instructors engaged; all we want is to have your co-operation. Allow our Instructors to go to your factories and work in the best way that may suggest itself; and with your help I believe, if we all do our best during 1905, we will be able to make even our summer cheese better than any in the Dominion.

In the butter trade we are willing to do hard work, and all we ask is the co-operation of the creamery men. So far as the Department is concerned, they are willing and anxious to do their part; and so far as I am con-

cerned, as Chief Instructor, I am only anxious to do the best I can for everybody in connection with the butter and cheese industry during the coming year.

Mr. Ballantyne: The Province of Quebec employs nearly seventy instructors. You will understand that these people are making a great effort to get up in this industry. It is true that they have yet a great deal to learn, and many of these instructors are not doing as good work as they could do, but you can realize what effort they are making to improve the quality, and with that you must compete.

A Member: Where do they get the money to pay these instructors?

Mr. Ballantyne: Most of the money comes from the factory, but the Quebec Legislature gives a sufficient grant to make up the deficiency. I think the factories are charged about $30 apiece, and the balance of the money is made up by the Legislature.

A Member: Are they all charged on the same basis?

Mr. Ballantyne: Yes, they are all put into syndicates, with so many factories to a syndicate, and they are all practically compelled to employ instructors.

Mr. McLaren: How much is the Government grant?

Mr. Ballantyne: I do not think it is given in that way. The Government give $400 a year to each instructor, and the balance is obtained from the factories. These instructors get about $900 a year.

A Member: We have trouble here with the joint stock companies. They say the cheesemakers should pay for the instruction.

Mr. Ballantyne: Most of those factories are owned by individuals. There are only a limited number of them joint stock company factories. The proprietor of the factory pays in all these cases, and the maker is hired by the month. Very few makers are hired down there as they are here, at so much a hundred and provide everything.

Mr. A. T. Bell: The ability of the makers here cannot be questioned very much. It seems to me it resolves into curing the cheese. Spring and fall cheese are the best made in Canada, and it seems to me it resolves itself in the cool-curing. I think if we shipped as Mr. Ballantyne suggests, the difficulty would be overcome.

Mr. Steinhoff: What about the milk?

Mr. Bell: If we have it all right in the fall and spring we can surely get it right in the summer.

The Chairman: Mr. Barr said, until we get better milk for the summer months we cannot make that fine, silky texture and fine-flavored cheese that the market demands. Mr. Bell thinks it resolves itself into curing the cheese.

Mr. Barr: I think that the conditions we have in the summer months are due entirely to the condition in which the milk is delivered at the factories, simply because the cheese are made from milk that is over ripe and the result is that they are rough in texture. If you have the milk sweet and clean you are not so apt to get that. I think it is the milk. Cool-curing is all right; but unless you get proper milk you cannot get that silky texture.

Mr. Bell: Was not the texture pronounced perfect in the cool-curing room at Woodstock?

Mr. Barr: There is just as much difference in texture in the individual factories in that room as in the factories outside.

A MEMBER: Don't you think there is a marked improvement in the cheese during the past two years—for the summer cheese?

Mr. BARR: I certainly do. In two or three sections I visited a year ago, I said then that there were cheese selling for 9½c. that I would not want to give more than 7½c. for the whole lot of them. During one month, in these same sections this year in our worst weather, I saw splendid, meaty cheese. I would not say they were fancy, but they were very much nicer. You would not think it was the same district at all. I think the makers are changing their ways and cutting out a little more of that bad milk. If we make as much improvement in the next two years as we have in the last, we will soon reach perfection.

A MEMBER: I cannot help but appreciate the work and efforts of our chief instructor and the staff, by whom I think we have all been benefited the past two seasons; and I, for one, could not help but express my good will and appreciation of their efforts. I would move a vote of thanks for their work, and I would use my influence to help them in their work. I am in the southern district, where we are feeling the influence and help we get from them more than you are in the north. In Eastern Ontario they are not suffering from the effect of the heat on milk as we do in the southern part of this Province, and for that reason I think the stand Mr. Barr has taken has been a great help to us. I would use my influence with him and his staff to help on the good work, and I have much pleasure in moving a vote of thanks for the effort they have put forth for the betterment of the dairymen.

Mr. BELL: I am sure I have been very well satisfied with the system of instruction followed by Mr. Barr, and I think it has resulted in great improvement. Makers have adopted a more scientific knowledge of the business and gone about it in a more business way. They know the why and wherefore for certain things now, and I will take great pleasure in seconding the motion.

The CHAIRMAN: It has been moved and seconded that a vote of thanks be tendered Mr. Barr for the service he has rendered this Association, and I am very glad indeed to know that the dairymen appreciate Mr. Barr's services. There is no more painstaking officer in the employ of the Association, nor one that has the interest of the work more at heart, and I may say that having been associated with Mr. Barr for a good many years, I do not think there is a better man in the Province of Ontario, east or west, than Mr. Barr. What we want is co-operation, we want the makers to co-operate together and get more of them in our district meetings. The co-operation of the makers will bring together co-operation of the milk producers and instructors, and when the three work together we will get the very best results.

The motion was unanimously carried amid much enthusiasm.

Mr. BARR: I appreciate this vote of thanks very much. I was just thinking while sitting here that I came just as near being an eastern man as anybody. Three or four years ago I quit making cheese and spent one year in Eastern Ontario. I had a splendid offer to go to Montreal for the firm for whom I was buying cheese, and at the same time I had the offer of my present situation. I wrote a letter at night saying I would take the Montreal situation, and got up in the morning and destroyed it. I have often wondered whether it was a wise thing to do or not. There has been a lot of worry and discouragement about the work I am doing, but I like it better than I did buying cheese. I feel interested in the work here, and for that reason I took the position, and I have been trying to do the best I can. I thank you very much for this vote of thanks.

The CHAIRMAN: Every member of this Association should do his best during the coming year to produce a first-class article of cheese. I know there is a lot of discouragement and grumbling on account of the low price of cheese during the past year, but I think what has a good deal to do with the low price has been the fact that cheese have been carried over and not sold when it should have been. We have come to realize that it takes so much money to produce a pound of cheese, and we want to produce that pound of cheese of the very finest quality. If we do so, we will get a fair price for that pound of cheese. And we also know that the man who gets a pound of good cheese will come back for another pound; but if he gets a poor pound of cheese he does not buy the other pound so quickly. They say we have reached the limit in the production of cheese; but I say that is not so, because if we produce the right kind of goods we can sell a great deal more of it. Take the last four or five years, and there is no branch of farming that has paid so well as dairying, and it will be the same during the next four or five years. The man who puts intelligence into his work is bound to succeed. If you get an intelligent maker, a man who is willing to learn, he will never get so far that he cannot learn any more. I have been in the cheese business for twenty-two years, and I have never yet made a cheese that suited me. I have always tried to do better.

In conclusion, we want your co-operation as a Board of Directors, and our instructors want your co-operation, and if wet get it we can accomplish great things.

After hearty votes of thanks to the civic authorities and to the press, the Convention adjourned.

APPENDIX.

THE BACTERIAL CONTAMINATION OF MILK AND ITS CONTROL.

By F. C. Harrison, Professor of Bacteriology, Ontario Agricultural College.

Milk, as sold in cities, towns and villages, contains a varying number of bacteria according to its age, the amount of sediment in it, and the temperature at which it has been kept. Soxhlet, Uhl, Backhaus and others have shown that the more dirt or sediment, the more bacteria there will be, and Renk has given us some interesting experimental data on the amount and kind of filth present in ordinary market milk. This filth is largely made up of excrementitious matter, vegetable fibres, epithelial debris, hairs of the cow, dust particles, etc., and the amount of filth contained in a litre of milk furnishes a positive index of the degree of cleanliness observed in the dairy stable. Renk found the following amount of dried impurities in the milk supply of the following German cities: Leipzig, 3.8 milligrams; Munich, 9 milligrams; Berlin, 10.3 milligrams; Halle, 12.2 milligrams per litre; and Hird found in the Washington, D.C., milk supply, 5.30 milligrams of filth per quart.

Backahus has also shown that 50 per cent. of fresh manure dissolves in milk and does not appear as sediment; and therefore the weight of undried filth in all these samples would have been more than doubled. This investigator has also determined by actual tests that the daily milk supply of Berlin, Germany, contains about three hundred pounds of dirt and filth. Further, many of the bacteria derived from such sources are very harmful, for not only are such fecal bacteria concerned in the intestinal troubles of infants, but they also give rise to abnormal fermentations in butter and cheese, producing taints, off-flavors, and decomposition products in these foods.

For the guidance of the dairyman who buys milk for sale, and for the housewife, Renk suggests the following rule: If a sample of milk shows any evidence of impurity settling on a transparent bottom within two hours, it is to be regarded as containing too much solid impurities.

When we examine the results relative to the number of bacteria in European market milk, we are at once struck by the enormous numbers that are frequently present.

Thus Clauss found that the number of germs per c.c. of Wurzburg milk ranged from 222,000 to 2,300,000. The average was between one and two millions per c. c. Knopf found from 200,000 to 6,000,000 per c. c. in the milk of Munich. Bujwid examined the milk of Warsaw, where there was an average of 4,000,000 per c.c. In the milk immediately after it was drawn from the cow he found 10,000 to 20,000 per c.c. In Amsterdam, Geuns found 2,500,000 per c.c. in fresh milk. Renk examined the market milk of Halle and found from 6,000,000 to 30,700,000 per c.c. Uhl in 30 tests of Giessen milk found from 83,000 to 169,600,000 per c.c. In the month of June he found an average of 2,900,000 per c.c. The average in May was 22,900,000. Uhl explains this difference by the supposition that the cows and stables were kept clean during this latter month, and there was less night's milk mixed with the morning's.

Knochenstiern examined more than 100 samples of the milk of Dorpat. He divided the samples into four classes, according to their sources. The averages of the numbers in the several classes ranged from 10,000,000 to 30,000,000 per c.c.

The milk supply of Helsingfors was studied by Hellens, who found in samples taken in the summer from 20,000 to 34,300 bacteria per c.c., while in the winter the bacterial content ranged from 70,000 to 18,630,000, and averaged 2,111,000 per c.c. About 60 per cent. of the summer samples contained over 1,000,000 bacteria per c.c., against 35 per cent. in the winter samples.

Rowland found in twenty-five samples of London, England, milk, an average of 500,000 bacteria per c.c.

Sacharbekoff examined more than eighty samples of St. Petersburg milk. The number of bacteria ranged from 400,000 to 115,300,000 per c.c., with an average of 16,596,000.

Conn has already pointed out the fact that the market milk of American towns and cities contains fewer bacteria than are to be found in European supplies; and he has explained as the reason for this difference, the free use of ice in North America.

Sedgwick and Batchelder examined a number of specimens of milk from Boston. They found, as an average of several tests, that milk obtained in a clean stable from a well-kept cow, milked into a sterilized bottle, contained 530 bacteria per c.c.; but when the milking was done under the ordinary conditions of farm practice the number of bacteria reached on the average 30,500. From fifteen samples of milk obtained from the houses of people in the suburbs of Boston the average was 69,000 germs; from fifty-seven samples from milkmen the average was 2,350,000, and from sixteen samples secured at groceries the average was 4,577,000 bacteria per c.c.

In 1901 Park reported on the milk supply of New York. He found that during the coldest weather the average was about 250,000 bacteria per c.c., during cool weather about 2,000,000, and during hot weather about 5,000,000. Regarding the harmfulness of these bacteria the writer cites the universal clinical experience "that a great many children in cities sicken on the milk supplied in summer, that those who are put on milk that is sterile, or that contains few bacteria, as a rule, mend rapidly, while those kept on the impure milk continue ill or die."

Leighton determined the number of bacteria in the milk supply of seventeen dairies at Montclair, N.J., the investigation extending over a period of three years. In dairies of the most approved type the average number of bacteria per c.c. was below 15,000. Poorly equipped dairies, in which the owners had endeavored to do their utmost to produce a pure product with the crude means at hand, gave an average of between 40,000 and 70,000 per c.c.; and in those dairies in which neither good equipment nor good intentions prevailed the average number of bacteria was over 180,000.

McDonnell sampled 352 lots from eleven American cities. The worst samples were found in restaurants, and with small retail dealers. Twenty-eight per cent. of all samples contained less than 100,000 bacteria per c.c., while 34 per cent. had less than 500,000 per c.c.

Loveland and Watson found in the supply of Middletown, Conn., from 11,000 to 85,500,000 per c.c.; and milk as delivered by milkmen to their private customers in the city of Madison, Wis., ranged from 15,000 to 2,000,000 organisms per c.c., varying mainly with the seasons of the year.

The writer examined about twenty samples of Guelph market milk, a few years ago, and found an average of 650,000 bacteria per c.c.

Eckles has made a bacteriological study of the milk supply of a creamery. He found from 1,000,000 to 5,000,000 organisms per c.c. in winter, and in summer from 10,000,000 to 80,000,000 per c.c.

During the summer of 1901, whilst investigating an affection known as bitter milk in a large cheese factory, the writer had the opportunity of analysing the milk of ninety-six patrons who delivered milk to the factory. The results of this examination showed that the mixed milk of each patron contained from 4,000,000 to 30,000,000 of micro-organisms per c.c. Astonishingly large numbers (from 100,000 to 5,000,000) of the Colon bacillus were found in many samples.

Having seen from this review of the bacterial content of European and American milk supplies, let us now examine the sources of this contamination.

The bacteria which find their way into milk come from:—(1) The fore-milk; (2) The animal and milker; (3) Dusty air; (4) Unclean utensils. And, as Russell remarks, "the relative importance of these various factors fluctuates in each individual instance."

Contamination from the Fore-Milk. (*See Fig. 1*).

The constant presence of bacteria in freshly-drawn milk is a matter of considerable importance, and this fact helps to explain the ineffectual attempts to obtain milk in commercial quantities uncontaminated by bacteria. At the same time it has been but very recently that investigations as to the number and nature of the organisms that gain access to the milk through their localization and multiplication in the mik ducts, have been made. The first recorded experiments are those of Leopold Schultz in 1892. He examined milk bacteriologically at the first of the milking, in the middle of the milking and at its close. The examination consisted merely in counting the number of bacteria present, and as a result the following figures were determined:—The first milk contained from 55,000 to 97,200 germs per c.c.; the middle milk from 2,000 to 9,000 germs per c.c.; and the last milk was in some cases sterile, and sometimes contained about 500 germs per c.c. The number of germs in the last milk, he says, depended upon the quickness with which the milking was done. When done quickly, all the germs were washed out, so that "the last milk was often, but not always, sterile."

Gernhardt, investigating the same subject, found a larger number in samples from the middle of the milking than at the beginning. To explain this result, as well as to explain irregularities in the numbers, he suggested that the bacteria made their way up through the milk-ducts of the teats, through the cistern, and into the smaller ramifications of the ducts which connect the cistern with the ultimate follicles. As many of the colonies so formed are not easily removed, they are not found in the first milk, but appear later when they have become broken up by the persistent movements of milking.

Von Freudenreich, on the other hand, states that when in the udder milk is free from bacteria, except when the milk glands are in a diseased condition.

H. L. Bolley and C. M. Hall, in their studies of the bacterial flora of the milk of ten healthy cows, isolated sixteen distinct species of bacteria, some of which were common to both the first and last milk, and others to only one of these. All the micro-organisms found were bacteria, and none were found which produced gas.

Russell, in his text-book on Dairy Bacteriology, published in 1894, states that he has found an average of 2,800 germs per c. c. in the fore-milk while the average of the remainder of the milk only had 330 germs per c.c. In characterizing this, he says that "the number of species is usually small, one or two kinds usually predominating to a large degree. Those that are commonly found are those that produce lactic acid, as these microbes find in milk the best medium for their growth."

Gosta Grotenfelt, however, in his text-book on the "Principles of Modern Dairy Practice," reasserts the statement of Von Freudenreich that when the milk is drawn from the udder of a healthy cow, it is germ-free or sterile.

Rotch concludes, from an examination of the bacteria found in four cows' milk, that the bacteria do not necessarily come from external sources, but that they may also come from some part of the milk-tract between the udder and the end of the teat. The few colonies, however, obtained in the plates from the latter half of the milkings, are considered as possible contaminations between the "cow" and the "plates."

Moore states that in investigations made upon the subject, he found that, in addition to the bacteria in the fore-milk, the last milk from at least one-quarter of the udder in every case contained bacteria.

Conn, reviewing this subject, says that the different results of many of these early experiments are due to the small quantities of milk taken, while in the latter experiments large quantities have been taken. He adds, "Undoubtedly the milk-gland of the healthy cow produces milk which is uncontaminated with bacteria, but the large calibre of the milk-ducts makes it possible for bacteria to grow in the duct to a considerable extent, so that it becomes a matter of extreme difficulty to obtain milk from the cow, even with the greatest precautions, which will not be contaminated."

Harrison, in 1897, in a report of investigations upon this subject stated: "When milking is done there remains in the teat of the cow a little milk that affords nourishment to any bacteria that may come in contact with it through the opening at the end of the teat." The average of a number of analyses made by him shows the presence of 18,000 to 54,000 germs in the fore-milk, and 1,000 to 3,000 in the after-milk.

Experiments have also been conducted on human milk by Palleske, Honigmann, Knochenstiern, and Ringel, but all of these have independently found it impossible to get human milk from the mammary gland in such a way as to be sterile.

The most recent work upon this subject has been done by Moore and Ward, of Cornell University. They investigated the source of a gas and taint-producing bacterium in cheese curd for a certain factory that was troubled with "gassy curd." They easily located the trouble in the herd of a particular patron. On inquiring into the history of the herd it was ascertained that at the time of parturition, the placentae had been retained by a number of cows, and these had been allowed to decompose in the uterus. It was soon after this that the "gassy curd" began to appear. A thorough bacteriological examination located the bacillus which was the cause of the "gassy curd" in the udders of the cows of the herd; and it seemed very probable, though, of course, not demonstrable, that it had gained access to the udders from the decaying placentae.

Subsequent to this, Ward conducted further experiments, and in an article on "The Persistence of Bacteria in the Milk-Ducts of the Cow's Udder," he concludes, (1) "certain species of bacteria are normally persistent in particular quarters of the udder for considerable periods of time, and

(2) it is possible for bacteria to remain in the normal udder and not be ejected along with the milk." These conclusions controvert the statement previously made by Von Freudenreich and Grotenfelt that the milk-ducts are always sterile at the close of milking, becoming tenanted from the outside alone by organisms which chance to come into contact with the end of the duct.

The results of still later investigations by the same author are published in a bulletin on the "Invasion of the Udder by Bacteria." In these investigations a bacteriological examination was made of the udders of milch cows slaughtered after reacting to the tuberculin test. In all cases the udders were perfectly normal. Just before slaughtering, the animals were milked as thoroughly as possible and samples of the milk taken, and a bacteriological examination made. After slaughtering, a similar examination was made of the tissues of the udder. In all cases, even in the upper third of the udder, bacteria were found, and they were identical with those found in the milk. He concludes that "milk, when secreted by the glands of the healthy udder, is sterile. It may, however, immediately become contaminated by the bacteria which are normally present in the smaller ducts of the udder." However, "the bacteria so far found in the interior of the udder do not affect milk seriously. This, however, does not preclude the possibility that forms more injurious to milk may invade the udder."

From the above resumé it is apparent that widely different results have been obtained by different investigators, and it has been a very interesting study to see whether the experiments conducted at Guelph would throw any light upon these divergencies in results.

The plan of experiment has been as follows: For a number of days samples were taken from the fore and after milk of a number of cows on the College Farm. The samples were collected in sterile test-tubes, and previous to taking the milk, the flank, udder, and teats of the cows were thoroughly washed with a 1-1000 solution of mercuric chloride. Gelatine plates were then made from these samples, and afterwards the number of colonies counted and the different species isolated and cultivated on the various media. It soon became apparent that while several species were more or less constant in the udders of all the cows, yet there were many variable species present in the milk of some cows that were not present in that of others, and not even in the same udder on two successive days. Therefore, in making a systematic study, it was deemed best to confine our attention to those species that were more or less constantly present in the milk of all cows, and to make a complete study of those existing in the udder of one particular cow.

The number of bacteria present in both the fore and after milk of the various cows, and of the same cow, and even in the different quarters of the udder of the same cow, were so widely different that little stress can be laid upon an exact enumeration.

The following samples, which are typical of many others, will illustrate the point:

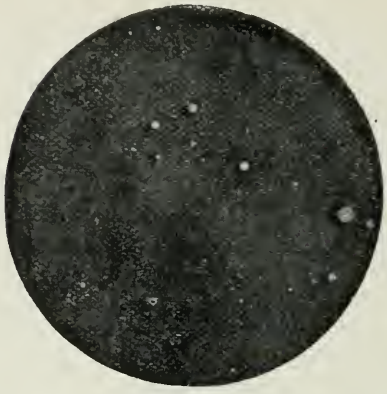
Cow No. 1. *Determination 1.*

Fore-milk,	right	front	teat	86,400 per c.c.
"	"	hind	"	120,000 "
Strippings,	"	front	"	40,800 "
"	"	hind	"	57,000 "

Fig. 1—Contamination from the Fore Milk.

Gelatine Plate shewing colonies of bacteria in 1-15 c. c. (about 2 drops) of the fore milk. (First few streams from all four teats).

Fig. 2—Bacterial Content of Milk, the Fore Milk being Rejected.

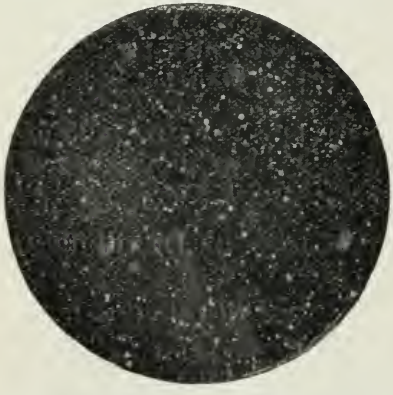


Gelatine Plate shewing colonies of bacteria in 1-15 c. c. (about two drops) of milk taken from the middle of the milking.

Fig. 3.

Shewing the bacterial contamination from hairs.

Fig. 4—Contamination from Animal and Milker.



Gelatine plate exposed under the udder of a cow for one minute, while milking under ordinary conditions.

Fig. 5—Contamination from Animal and Milker.

Gelatine plate held under cow for one minute while milking. The udder and flanks well moistened with water.

Fig. 6—Sanitary Milk Pail and Milker Properly Clothed.

Fig. 7—Thistle Milking Machine.

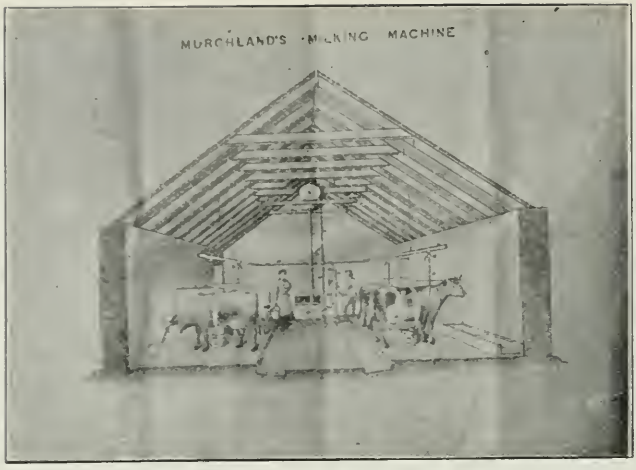


Fig. 8—Murchland Milking Machine.

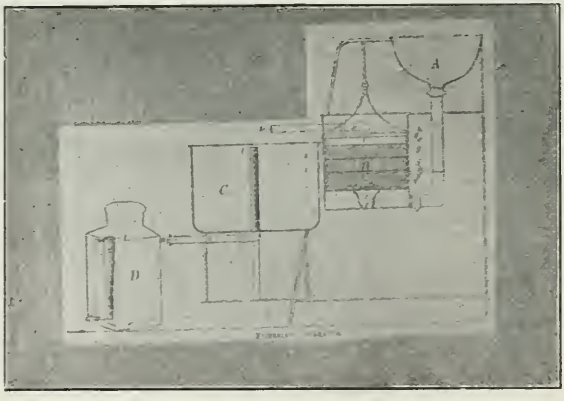


Fig. 9—Section of Copenhagen Gravel Filter

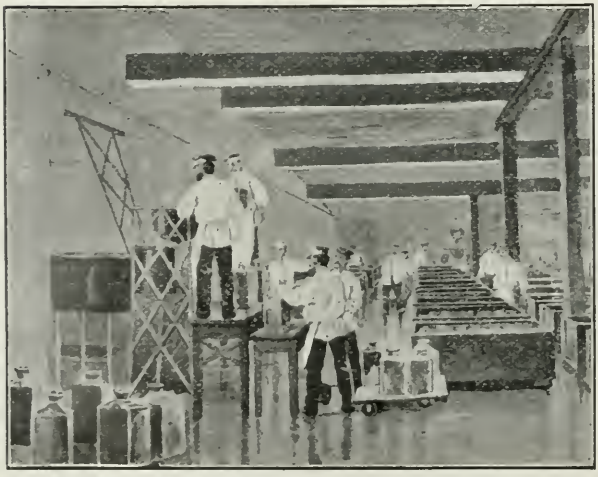
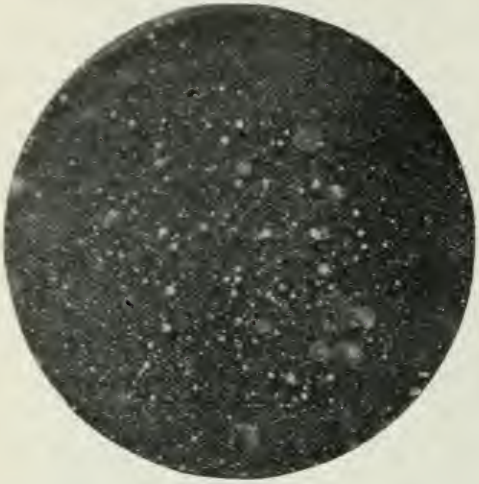


Fig. 10—Filtering Milk Through Gravel.

Fig. 11—Cleaning Milk by Centrifugal Force. S. Separators.

Fig. 12—Germ Content of Barn Air During Bedding, Cleaning Up, Feeding, Etc.



Gelatine plate exposed to the deposition of germs for one minute in a stable when some of the above operations were in progress.

Fig. 13—Germ Content of Barn Air During Bedding, Cleaning Up, Feeding, Etc.

Gelatine plate exposed to the deposition of germs for one minute in a stable when all the above operations had been completed.

Fig. 14—Contamination from the use of Improperly Cleaned Dairy Utensils.

After a can had been washed with warm water and thoroughly drained, a quantity of sterile water was added and the can well rinsed. This gelatine plate was made from 1-100 c. c. (a very tiny drop) of this water.

Fig. 15—Contamination from the use of Properly Cleaned Dairy Utensils.

After a can had been washed, scalded and steamed for five minutes, and thoroughly drained, a quantity of sterile water was poured in and the can well rinsed. This gelatine plate was then made from 1-5 c.c. (about six drops) of this water.

Fig. 16—A Sanitary Dairy. Filling Bottles.

Fig. 17—A Sanitary Dairy. Bottle Washing and Bottle Steam Sterilizer.

	Determination 2.
Fore-milk, right front teat	48,000 per c.c.
" " hind "	24,080 "
" left front "	22,400 "
" " hind "	35,100 "

Cow No. 2.	*Determination 1.*
Fore-milk	200-500 per c.c.
After-milk	0-100 "

The results of a large number of determinations, of which the above are typical, showed on an average 25-50,000 germs per c.c. in the fore-milk. The number in the strippings or after-milk varied greatly with the manner of taking. For example, when the milking was done quickly, but very few and sometimes no colonies were found in the "strippings," whereas, when the milking was done slowly and some time lost before the samples from the last milk were taken; the number of bacteria was very variable, being in one case as high as 57,000.

The important point, therefore, is not the exact number, but the fact that bacteria were found in large numbers, not only in the fore, but in the middle and last milk of nearly all the cows tested.

The number of species present in the udders of cows is very small. Of this number some are more or less constantly present, whereas others are very variable in their presence. Of those species which are present, the characters are in many cases so slightly marked that their identification proved a very difficult matter. In fact, with the exception of *Bacillus acidi lactici,* not a single species discovered was strongly characterized. A number had a very little or no effect upon milk, and even the digestors were in every case very slow digestors.

Comment has already been made upon the fact that by far the largest number of species determined in all the samples tested were lactic acid species, and that other species, although more or less constantly present, were not invariably so, and never in very large quantities. This is a most important, practical consideration, for it means that, although by the most scrupulous care, it may not be possible to procure milk free from germ-life because of those that are present in the udder of the cow, yet the species that gain access to the milk through this source are, for the most part, beneficial ones. In Bulletin No. 21, 1900, of Storrs Agricultural Experimental Station, Conn speaks of a method, now widely adopted in American dairies, for procuring what is known as a "natural starter." The method consists of drawing milk, just as has been done in all the examinations we have made, into sterilized flasks, and using cultures from these as starters. Conn says, "there can be no question that the use of natural starters thus made has been a very decided advantage to the buttermaker," for the reason that "the bacteria which are within the cleanly cow's udder and thence get into the milk, are most commonly of the desired character." There is, no doubt, some uncertainty about this method, but so far as all examinations conducted by us are concerned, the cultures so obtained would be good ones, being largely composed of lactic acid species.

While the large per cent. of lactic acid species present is the paramount characteristic of the bacterial flora of freshly drawn milk, yet there are other peculiarities of considerable, if not equal, importance.

Although each species isolated from pure milk would grow at room temperature, yet the optimum temperature was in the neighborhood of 37 degrees. This fact was well demonstrated in comparing gelatin plates, made

from the general milk supply, with those made from the aseptically drawn milk. These plates cannot be kept at a temperature higher than 22 degrees and it was most marked that when plates from the former were quite covered with bacterial growth, those from the latter were still clear. On the other hand, when agar plates were used and kept at a temperature of 37 degrees, the order of growth was slightly reversed. This explains facts that were noted in reference to the keeping quality of the aseptically drawn milk, as compared with that of the general milk supply; for, when kept at room temperatures, the former remained good considerably longer than the latter; whereas, when kept at 37 degrees, both became curdled in less than twenty-four hours.

Another marked characteristic of all the species was that they were facultative anaerobes.* The anaerobic faculty was especially marked in the two species, Nos. 1 and 2, that were found to be so uniformly present in all the milk tested. This is just what one would naturally expect, for the conditions in the udder must be largely anaerobic conditions. In virtue of these conditions, and possibly other undetermined conditions, the udder, so to speak, exerts a selective action upon the bacteria which may be temporarily present in it. In this they are, of course, aided by the mechanical expulsion of bacteria in the process of milking.

In order to throw a little light upon this problem, experiments were conducted in inoculating udders with well-marked but harmless bacteria, which could be easily recognized by their cultural characteristics. *Bacillus prodigiosus* and *B. exiguum*, both of which were marked by their pigment production, were the ones experimented with. Cultures of these were smeared upon the ends of the teats, so that the bacteria might work their way up into the udder, just as any other germ might which comes in contact with the ducts of the teat. In the case of *B. prodigiosus*, about 20,000 per c.c. were present in the fore-milk at the first milking eight hours after inoculation. By the third milking only a few were present, and after that it disappeared completely. The experiment was repeated with *B. exiguum* with similar results, although a smaller number—240 per c.c.—were present in the first milking, and by the fourth milking it had disappeared. No doubt the small number was due to the fact that the germ grows more slowly than *B. prodigiosus*.

In view of Ward's discovery of *B. fluorescens liquefaciens* in the udders of certain cows, it seemed advisable to attempt to colonize this germ in the udder, and a bouillon culture was smeared upon the ends of the teats of a cow in the manner already described. This bacillus was discovered in the fore-milk six hours after the teats were smeared, but was not found in the fore-milk in the second and third milkings.

It does not seem probable that an aerobic bacterium of this character is able to live and compete with facultative anaerobic bacilli. Further, the best temperature for the fluorescing bacterium is not 37 degrees.

Possibly, by continuous experimentation, we might have finally discovered a species which would persist in the udder, but at the same time, the bacteria chosen have evidently fared much the same as other more or less injurious forms which may occasionally find temporary lodgment in the udder. Exception, however, may occur, as we have the gas and taint-producing bacillus located by Ward and Moore in the udders of the cows of a particular herd.

*Able to grow without oxygen.

It might reasonably be asked if the advice, commonly given to those who wish to procure milk as near sterile as possible, to milk the first few streams in a separate utensil, is good. And in reply we would say, decidedly yes, for not only is the number of bacteria in the fore-milk much in the excess of the bacteria found in the rest of the milk, but frequently the number of species found in the fore-milk is considerably larger than that in the after-milk. (*See Fig. 2*).

In reviewing the subject there can be no doubt that the number of bacteria present in the milk as it exists before being drawn from the udder is somewhat startling, and were nothing more than an enumeration of the germs given, there might be some occasion for alarm.

However, a systematic study of the germs proves that, with the possible exception of rare cases, this source of bacterial life is much more beneficial than baneful to the average consumer of milk and its products.

Contamination from Animal and Milker.

A prolific source of contamination is from the animal and milker, and the following realistic statement describes a condition which unhappily is only too common on many farms: —

"The day has gone by when a pretty milkmaid went, in clean white apron and with shining milk pail, to milk the cow with the crumpled horn, out among the buttercups on a dewy morning. Instead, some old fellow stumbles out of the house and to the barn, with the stump of a clay pipe in his mouth, and wearing overalls and boots saturated and covered with the filth acquired by a winter's use. When he reaches the barn he selects some recumbent cow, kicks her until she stands up dripping and slimy, and as he is a little late and the milk will hardly have time to cool before the man who carries it to the city will come along, he does not stop to clean up behind the cow, but sitting down on a stool, proceeds to gather the milk, and whatever else may fall, into a pail which perhaps is clean and perhaps is not. Of such refinements as washing the udder of the cow or wiping her flanks he has never heard. If he has, it is only to scoff. Then he stands the milk behind the cows. That is bad enough, but it is not all the story. Everyone knows that in straining the milk the strainer becomes obstructed, more or less, with dirt and filth, and when the milk does not run fast enough, he would be a rare milker who hesitated to scrape away a place with his fingers so that the milk might run more freely. Those who have seen certain fingers, as I have, know what that means."

This description seems hardly credible, but when one visits an ordinary cattle stable, he is prepared to believe almost anything under this head. The hair of cows, even those that are kept very clean, swarms with bacteria. (*See Fig. 3*). Many hundreds may be isolated from a few particles of hair, and this fact alone shows the importance of keeping cows clean, well carded and well brushed. When in this condition they are not so liable to lose hairs, nor are the hairs so easily dislodged during the movements of milking. The particles of manure and filth which cling to the sides, flank, udder and tail of animals are laden with germ life. Wüthrich and Freudenreich have found far more bacteria in manure when the animals are given dry food than when kept upon grass, and the most numerous species present were the colon bacillus, the hay bacillus, and other species able to liquefy gelatine, and peptonise casein. Great care should be taken in the construction of cow stalls. If they are too long the hind-quarters of the animal are apt to be

plastered with manure when she lies down; and when too short, the hind-quarters and tail find their resting place in the gutter. *(See Fig. 4).*

The milker, too, is not always above reproach. Clothed in dust-laden garments, used for all kinds of farm and stable work, without even washing his hands, he does the milking as he would do any other job on the farm. Too often the milker has the filthy practice of moistening his hands and the cow's teats with milk. Freudenreich reports some experiments in which the germ-content of milk was reduced from several thousands to 200 where the hands were well rubbed with vaseline before milking, and as pointed out by Russell, a pinch of vaseline not only helps the milker to obtain a firmer grasp, but also prevents scales or dirt from being rubbed from the teats, and its effect on sore or chapped teats is healing.

Methods of Prevention.

Contamination from the milker can, however, to a very large extent, be prevented by moistening thoroughly the flanks and udder of the cow before milking. Germs cannot leave a moist surface, and the dust-like particles are thus held in place. *(See Fig. 5).* The following instructive experiment is cited by Russell:—

"When the animal was milked without any special precautions being taken, there were 3,250 bacteria per minute deposited on an area equal to the exposed top of a ten-inch pail. When the cow received the precautionary treatment, as suggested above, there were only 115 bacteria per minute deposited on the same area. This indicates that a large number of organisms from the dry coat of the animal can be kept out of the milk if such simple precautions are carried out." It has been frequently found that the germ-content of the milk in the pail is increased from 20,000 to 40,000 bacteria per minute during the milking period by the dislodgment of organisms from the animal.

By diminishing the exposed surface of the milk-pail, *(see Fig. 6)*, a considerable amount of dirt may be excluded, as it is obvious that less dirt will fall in a pail with a small opening. A number of different types of such pails are now in use, and Eckles and other investigators have given us experimental data on the subject. Thus 43,200 bacteria per c.c. were found in the milk drawn in a common pail, as against 3,200 per c.c. in the covered pail. The milk soured in forty-three hours in the first case; sixty-four hours in the latter case.

The milker should put on a clean, loose cotton or linen smock over his clothes, and invariably wash his hands immediately before milking. The milking smock should be washed frequently and should be kept, not in the open barn or stable, but in some place as far removed as possible from all kinds of dust and dirt. The practice of moistening the hands or cow's teats with milk should be scrupulously avoided.

Milking Machines.

Of late years several milking machines have been introduced to obviate the difficulty in obtaining milkers, and to lessen the time taken in milking. Such machines, in order to be a success, must do the milking naturally, quickly, thoroughly, and without any annoyance to the cow. Further, milk

drawn by such a machine must be of good keeping quality, and the machine must be adaptable to the requirements and arrangements of an ordinary dairy farm.

When first introduced many dairymen expressed the opinion that these machines would guard against the admittance of all dirt, but unfortunately this requirement has not been fulfilled by a machine installed in the dairy stable of the Ontario Agricultural College. This machine, called the "Thistle Milking Machine," (*see Fig. 7*), was in more or less constant use in our stable during the summer of 1899, and we took advantage of this opportunity to make bacteriological analyses of the milk milked with the machine as compared with milk drawn by hand milking. We found that the machine milk had a far larger germ content than that milked in the usual manner, and after making a direct comparison between the number of bacteria in machine milk and the number in hand milk, we found that the proportion varied greatly, from three to twenty times as many bacteria being found in the machine milk as in the hand drawn milk. The averages were as follows:—

Machine Milk.		*Hand Milk.*	
No. of Analyses.	No. of Bacteria in c.cm. of	No. of Analyses.	No. of Bacteria in c.cm. of
	Morning's milk.		*Morning's milk.*
161	141,600	78	10,600
	Evening's milk.		*Evening's milk.*
74	165,000	16	12,900

These results were greatly in favor of hand-milking, and the large number of bacteria found in machine milk was attributed to three causes:

1. When the rubber teat-cups are fastened on the cow, a small portion of the hairy coat of the udder is included in the cup, and no matter how clean the animal is, germs are sure to be present on this coat in considerable numbers, depending upon the cleanliness of the udder.

When the suction of the machine is applied, the force exerted naturally draws any loose or dry particles that may be on the teats and that portion of the udder within the cups, down into the milk. In this way, many germs on these particles gain access to the milk, and find in it suitable conditions for their growth and multiplication.

2. The teat-cups and connecting tubes to the milk pail are made of rubber and consequently cannot be scalded or steamed, as scalding water or steam would crack and spoil the rubber; hence it is impossible to cleanse them thoroughly from germ life. They may look clean after being rinsed in warm water and kept in cold water, but they are certainly not bacteriologically clean, *i.e.*, free from germs; and in the process of milking many of the germs on the inside of the rubber and in the crevices of the tubing are washed into the milk. Conclusive evidence on this is afforded by the fact that, time and again, germs that were constantly present in water in which the rubber tubing was kept between milkings were also found in the milk.

3. In detaching the cups from one cow and putting them on another, attendants sometimes let them fall upon the floor of the stable, and in this way germ-loaded particles of dust and dirt get into the teat-cups and find their way into the pail as soon as the milking of the next cow begins. Of course, this may be put down to carelessness on the part of the attendants; but in our experience, no matter how careful the transfer was made from one

cow to another, instances of the cups falling occurred from time to time, and each time undoubtedly made a large addition to the germ content of the milk.

In 1898, the Highland and Agricultural Society of Scotland offered a prize of £50 for the best milking machine. Only two makers entered their machines for competition, viz., Mr. W. Murchland of Kilmarnock, (the Murchland Milking Machine Company, *(see Fig. 8)*, and the Thistle Mechanical Milking Machine Company. The judges, after an exhaustive trial, awarded the prize to the Murchland milking machine, it having in every respect most effectually filled the conditions which they originally agreed should guide them in making their awards. In every instance the samples of milk drawn by this machine were found to keep satisfactorily. After a lapse of forty-eight hours, they were found in no respect inferior to the samples of milk drawn by hand, in fact, if anything, rather superior in point of flavor. The judges regarded the Murchland machine as a practical success. On the other hand, the chief defect in the Thistle milking machine was the effect it had upon the keeping qualities of the milk. Most of the samples from it developed sourness in twelve to twenty-four hours, while samples drawn by hand from the same cows at the same time, and kept under precisely the same conditions, remained perfectly sweet for from thirty-six to fifty hours.

The Murchland machine was also placed in competition for a prize of £50 at the York meeting of the Royal Agricultural Society at York. In the opinion of the judges it presented such difficulties for efficient cleaning that they were unable to report that it adequately fulfilled the requirements set forth in the regulations for these trials. No award was made in the competition.

Cleaning Milk by the Use of a Gravel Filter.

The gravel filter in most general use is the model used by the Copenhagen Milk Supply Company, *(see Figs. 9 and 10)*. It consists of two enamelled iron tanks placed at different levels; a pipe in the form of a siphon has its long limb connected with the bottom of the upper tank, and its short limb with the bottom of the lower tank, so that the milk poured into the upper tank comes up as a kind of spring at the bottom of the lower one. On the bottom tank there are three layers of gravel, that in the lower layer being about the size of a pea; in the middle layer somewhat smaller, and in the third or top layer, a little larger than a pin's head. The layers are separated from each other by perforated tin trays. On the top of the uppermost layer of gravel are five thicknesses of fine cloth. The whole is kept in position by a pyramidal frame-work which presses down the tin trays. As the milk rises to the top of the tank, it passes into a large storage or mixing receptacle. These filters require the most careful management, and are generally taken to pieces immediately after use, when the gravel is washed in hot water until the water comes off clean. It is then steamed at a temperature of 202 degrees F., after which it is spread out in shallow trays, and baked at a high heat. For the concluding operation, the gravel is placed in a winnowing machine, which drives off all particles of fine dust.

Schuppan seems to have first called attention to the use of gravel filters as a means of reducing the number of bacteria in milk. He reported in 1893 that the bacterial content of milk was reduced 48 per cent. by sand filtration; and at the meeting of the German Dairy Association in 1893, he strongly recommended the use of sand filters for removing dirt and germs from milk. The use of sand filters was, however, questioned by other members.

Backhaus, whilst giving no numerical data, reports that these filters have no effect in reducing the number of bacteria in the filtered milk. The mechanical separation is good, all coarse particles, such as hair, straw, manure, etc., are arrested; but the bacteria are washed out of the manure, and the milk contains more bacteria than before filtration.

In 1899, Dunbar and Kister made an exhaustive study of the working of this class of filter. In twenty-two analyses of raw and filtered milk there were in seventeen cases more bacteria present after filtration, and in four cases fewer bacteria. A few samples of their results will suffice:

Raw Milk.	*Filtered Milk.*
80,000 per c.c.	60,000 per c.c.
793,000 "	44,100 "
95,000 "	49,400 "
819,000 "	94,000 "
Average 446,700 "	Average 61,800 "

In these cases filtration diminished the bacterial content of the milk.

Of the seventeen other samples, the bacterial content after filtration was increased, thus:—

Raw Milk.	*Filtered Milk.*
350,000 per c.c.	600,000 per c.c.
650,000 "	950,000 "
650,000 "	1,260,000 "
320,000 "	620,000 "
3,900,000 "	14,300,000 "

The average of the seventeen analyses was:—

Raw Milk.	*After Filtration through Gravel.*
1,300,000 per c.c.	5,567,000 per. c.c.

Cleaning Milk by Centrifugal Force.

Clarified milk, (*see Fig. 11*), or milk that has been passed through a separator, has been recently quite extensively advertised. The effect of this method of cleaning milk is similar to that of the gravel filters, and according to Backhaus, 95 per cent. of the mechanical impurities (hairs, manure particles, etc.), are eliminated. The separator divides the milk into three parts, the slime which adheres to the bowl of the machine, the skim-milk and the cream. Several investigators have given us data of the number of bacteria which are found in these three products. Thus Popp and Becker found the germ content per c.c. of the whole milk to be 72,954; of the cream of this milk, 58,275; the separator skim-milk, 21,735; and the separator slime, 43,891.

Scheurlen found in one litre of milk 2,050,000,000 of bacteria, and after separation 1,700 in the 200 c.c. of cream, 560,000,000 in the 800 c.c. skim-milk, and 18,000,000 in the 6 c. c. of slime.

Other investigators have also shown that centrifugation does not decrease the number of bacteria in milk. Thus Fjord and Fleischmann claim that centrifugal separation has little value as a means of purification, and

Conn states that "milk after passing through a centrifuge, although it contains less gross impurities, shows more bacteria than before." This is explained by the fact that masses are broken up, and large numbers of bacteria liberated, "and again," the same writer says, "centrifugal purification does not materially affect the bacteria, for there seem to be about as many after treatment as before."

Niederstadt obtained similar results, for he found that by the centrifugal treatment of 300 litres of milk, about 130 grams of sediment were obtained. The cream was richer in bacteria than the sediment. The separator effected no purification of milk from bacteria, and 75 per cent. of the bacteria went into the cream.

Dunbar and Kister, in an exhaustive series of experiments, found in four instances fewer bacteria after separation, the average of these four instances being as follows:—

Raw Milk	*Centrifuged Milk.*
446,000 per c.c.	146,000 per c.c.

But in the remainder of the experiments, twenty-four in number, more bacteria were found in the separated milk, the averages in this case being:

Raw Milk	*Centrifuged Milk.*
1,400,000 per c.c.	2,200,000 per c.c.

It would seem from these figures that the smaller the number of bacteria present in the whole milk, the more efficient was the separator in reducing their numbers.

Eckles and Barnes have also investigated the purification of milk by the centrifugal separator. They found a large proportion of the bacteria removed by centrifuging, but no enhancement in keeping quality.

Russell, in a private communication to the writer, expresses his opinion thus: "I do not think clarification is worth the trouble, unless the milk is exceptionally dirty."

At the suggestion of the Ontario Department of Agriculture, we (my assistant, Dr. Streit and myself) have reinvestigated this subject.

A power belt separator was used, run at the speed indicated by the manufacturers. The milk came from farms in the vicinity, and was of average quality, similar to the ordinary factory supply. About 150 pounds of this milk were thoroughly mixed in a sterilized can with a sterilized stirrer. A half-pint sample of the milk was taken in a sterilized jar, the rest of the milk being put through a separator. The cream and skim-milk were caught together in a sterilized can, and were again thoroughly mixed with a sterilized stirrer, and another half-pint sample of the clarified sample was taken. Both samples were immediately carried to the laboratory, where suitable dilutions were made and plates poured.

The culture medium used was whey gelatine, with one per cent. of peptone. The plates were kept at 20 degrees C. and counted at the end of forty-eight or seventy-two hours, depending on the size of the colonies. In most cases the plates were counted by each of us independently, so as to reduce the personal equation.

Each result given in the table is the average of four plates, and thus the gross averages represents the numerical results obtained from 240 plates of analyses.

THE BACTERIAL CONTENT OF MILK BEFORE AND AFTER SEPARATION.

Date.	Before Separation.		After Separation.		
	Total No. of colonies.	Liquefying colonies.	Total No. of colonies.	Liquefying colonies.	More bacteria after separation + or less —
April 8	447,000	25,000	775,000	64,000	+
" 8	391,000	23,300	1,000,000	196,000	+
" 10	491,000	6,500	529,000	18,700	+
" 10	442,000	7,500	469,000	16,000	+
" 12	1,351,000	88,500	2,495,000	271,000	+
" 12	1,990,000	67,500	2,070,000	110,000	+
" 17	1,958,000	.....	4,250,000	21,600	+
" 17	3,000,000	3,800	3,750,000	9,000	+
" 19	1,850,000	6,600	2,700,000	30,700	+
" 19	2,500,000	6,000	2,800,000	25,700	+
" 22	1,100,000	4,200	1,160,000	10,850	+
" 22	1,200,000	10,850	1,200,000	18,750	+
" 24	2,000,000	15,000	2,000,000	10,000	—
" 24	2,000,000	11,000	2,250,000	13,000	+
" 26	996,000	6,000	1,100,000	12,600	+
" 26	1,100,000	11,000	994,000	8,600	—
" 24	2,700,000	4,800	2,900,000	12,000	+
" 24	3,000,000	13,000	2,700,000	7,600	—
May 1	714,000	22,800	790,000	56,000	+
" 1	646,000	30,000	730,000	32,000	+
" 3	950,000	38,000	908,000	36,000	—
" 3	832,000	26,000	964,000	38,000	+
" 7	530,000	30,000	710,000	40,000	+
" 7	480,000	13,000	805,000	22,000	+
" 17	2,250,000	31,000	2,470,000	61,000	+
" 17	2,060,000	6,000	3,000,000	61,000	+
" 20	2,300,000	.....	2,750,000	.....	+
" 20	2,800,000	.....	2,300,000	.....	—
" 22	16,000,000	20,000	15,000,000	19,000	—
" 22	12,000,000	26,000	17,000,000	26,000	+
Average	2,359,000	19,800	2,759,000	44,540	+

400,000 bacteria per c.c. more in centrifuged milk.

24,740 liquefying bacteria per c.c. more in centrifuged milk.

A perusal of the table will show that on six occasions there were fewer bacteria after separation than before, and on twenty-four occasions more bacteria present after clarification than in the raw milk.

Another striking fact brought out by this investigation is the large increase of liquefying colonies in the separated milk. The bacteria which liquefy gelatine are usually harmful, some are spore-producing germs and they give rise to off-flavors in both cheese and butter. Many of this class are present in manure, on particles of fodder, etc., and our results seem to show that these bacteria exist in clumps or masses in such material and the centrifugal process breaks these up and distributes them through the milk.

These results obtained at Guelph are identical with those obtained by Dunbar and Kister, and go to show that centrifugal purification, as far as bacteria are concerned, is ineffectual.

Contamination of Milk from the Stable Air.

Although it is difficult to separate contaminations from animal and milker and that from the air, it is better to consider the latter source of infection separately, as the number of germs floating in the air depends to a great extent upon the amount of dry fodder and straw that may be used in the stable. If manure is not frequently and thoroughly cleaned out, it gets dry and small particles from it help to swell the number of microbes in the air. The greater disturbance of these dusty fodders at any time, the greater will be the germ content of the air at that time. The following data show the number of bacteria per minute deposited in a 12-inch pail. In series A (*see Fig. 12*), the exposure was made during bedding; in B (*see Fig. 13*), one hour after this operation.

Series A.	16,000	13,536	12,216	12,890
	15,340	19,200	23,400	27,342
	42,750	27,820	18,730	12,210
Average.....	20,100			
Series B.	483	610	820	715
	1,880	1,987	2,112	1,650
	990	1,342	2,370	1,750
Average.....	1,400			

These results indicate that many bacteria are attached to particles of considerable weight, as they soon settle on the floor.

Cows are frequently bedded with dusty straw at the very time when milking is going on, a forkful of straw in some instances that have come under my observation, having been thrust under the cow that was being milked. Dusty fodders are often thrown down from the loft when the milking is in progress, filling the stable with dust, every particle of which carries spores of moulds and bacteria. It must be remembered also that very undesirable spores which are very difficult to kill, even by long-continued steam heat, abound in straw and hay.

Much benefit would ensue either from moistening the fodder or from feeding and bedding an hour or so before milking commences, to allow the dust, etc., of the air time to settle. In many of the more modern dairy farms, the stables are thoroughly cleaned and ventilated, the floors sprinkled, and the manure removed from the building before milking commences, or a milking room is provided, into which the cows, one, two or three at a time, are brought for milking. This room is supplied with water, conveniently located, and kept in an absolutely clean condition.

Contamination of Milk from Dairy Utensils.

Probably more trouble is caused to butter and cheese makers by the use of dirty utensils than any other way. Every article that is brought into contact with milk is at once infected with bacteria. When milk is left in storage cans for some time, a tremendous number of microbes develop, and a vast number of spores or latent forms of bacteria are produced. In this way, vessels are infected, and the bacteria find lodgment in all the cracks and crevices of pails, cans, dippers, strainers, etc. Take any milk-can and run the

point of a pen-knife along the seam of the can, and you will find a stinking, cheesy mass, composed very largely of bacteria, all ready to grow and reproduce when fresh milk is poured in the can. Nothing is more difficult to clean than these dairy utensils, with the facilities at hand on the average farm. Scalding with hot water is often insufficient to kill the bacteria on the inner surface of the can, and in the cracks and crevices which are usually present. The following experiments will suffice to show the importance of utensils as a factor in milk contamination. Thus Russell took two cans, one of which had been cleaned in the ordinary way, while the other was sterilized by steaming. Before milking, the udder of the cow was thoroughly cleaned, and special precautions taken to avoid the raising of dust; and the fore-milk was rejected. Milk drawn into these cans showed the following germ-content:

	Number of Bacteria.	*Hours before Souring.*
Steamed pail	165 per c.c.	28½
Ordinary pail	4,265 "	23

The writer has also shown the great differences in the bacterial content of cans by a bacterial analysis of the can washings. Cans were rinsed with 100 c.c. of sterile water, and numberical determination of this rinsing water was made.

The following data are from cans poorly cleaned, (*see Fig. 14*), cans washed in tepid water and then scalded—the best farm practice—and cans washed in tepid water and then steamed for five minutes (*see Fig. 15*).

Bacterial Contents of Cans Cleaned in Various Ways.

	Number of Bacteria per c.c. of Can Washings.		
Poorly Cleaned	238,500	342,800	215,400
	618,000	806,000	510,000
	230,000	600,000	418,000
Average...442,000			
Ordinary Method	89,000	84,000	26,000
	24,000	38,000	76,000
	15,000	44,000	93,000
Average... 54,300			
Approved Method	1,100	1,800	890
	355	416	725
Average.....880			

All cans should be constructed so as to facilitate cleaning. Stamped pails, without seams, may now be purchased, but if seams are present they should be examined to see that they are well flushed with solder. The bottoms of all cans should be concave, and not convex, to expedite cleaning.

After thorough rinsing to remove organic matter, cans should be washed in hot water, to which borax or soda may be added. After washing, rinse with boiling water, and if available place the can over a steam-jet for a few minutes.

The Effect of Temperature.

After the milk is infected with bacteria, the temperature at which it is kept exerts an important influence on the rate of growth or multiplication of the bacteria in the milk. Freudenreich obtained some milk, which when de-

livered at his laboratory two and a half hours after the milking, had 9,300 germs per c. c. Samples were stored at 15, 25, and 36 degrees C. (or 59, 77 and 95 degrees F.), and the results were as follows per c.c.:

	15°	25°	35°
3 hours	16,000	18,000	30,000
6 "	25,000	172,000	12,000,000
9 "	46,500	1,000,000	35,280,000
24 "	5,700,000	577,000,000	50,000,000

If we analyze this table we find that at 15 degrees the increase during the first half hour was 700, or 7 per cent., which would indicate that the average duration of a generation is thirteen hours. In three hours more, the increase is 15,000, or 150 per cent., which gives the average duration of a generation as two hours. In the next three hours, the increase is 21,500, and the average duration of a generation about 3½ hours. From the ninth to the twenty-fourth hour, the average is about 2½ hours. At 25 degrees, the times required for a doubling of the number are for the successive periods, about half an hour, about an hour, and about 7½ hours. At 35 degrees the time occupied in a generation was about twenty minutes at first, then about forty-five minutes, and at last thirty-seven hours. These results are curious, but could only be explained by a fuller knowledge of the species concerned, and of the cause influencing the changes.

The most important point brought out in this experiment is the tremendous rate of increase at the higher temperatures: therefore much may be done to restrain this rapid multiplication by cooling the milk as rapidly as possible. Milk allowed to cool naturally takes some time before it reaches the temperature of the air. Hence, measures should be promptly taken to reduce the temperature quickly.

Certified Milk.

Of late years a number of sanitary, model dairies have been established in the vicinity of large cities in various parts of the United States and Canada *(see Figs. 16 and 17)* which have placed on the market milk with a relatively low bacterial content. Such milk is known as "hygienic," "sanitary," or "certified." It is interesting to note that these establishments prosper, an indication that the discriminating public appreciate the honest endeavor of these dairies to produce milk which will fulfil the requirements of the most exacting sanitarian.

These establishments put into practice the suggestions made by various experimenters and investigators, as the result of their experimental inquiries, and these have been more or less briefly outlined in this paper. The freedom from bacteria obtained in these dairies depends on the thoroughness with which all details are carried out. Russell has shown that when samples of milk are secured under as nearly aseptic conditions as possible, the germ content was 330 organisms per c.c.; but when drawn under ordinary conditions, the bacterial content was 15,500 organisms per c. c. Marshall gives similar results, for example, milk drawn under aseptic conditions averaged 295 bacteria per c.c.; under ordinary conditions, 786,000 per c.c.

In certain cases milk coming from sanitary dairies is endorsed by a board of examining physicians and experts. Thus the Milk Commission of the Medical Society of the County of New York endorses milk from various dairies when the acidity of the milk is below 0.2 per cent., and when the

milk contains less than 30,000 bacteria per c.c. The Milk Commission of the Philadelphia Pediatric Society give their endorsement for milk free from pus and injurious germs, and having not more than 10,000 germs per c.c.

Such milk naturally has enhanced keeping qualities, and milk and cream from several such hygienic dairies in the United States were shipped to the Paris Exposition in 1900, arriving in good condition after 15 to 18 days in transit.

The adoption of a numerical standard seems a very necessary step. Bitter suggests that 50,000 organisms per c.c. should be a maximum limit in milk intended as human food. Park thinks that any intelligent farmer, with sufficient cleanliness and a low temperature, can supply milk averaging not over 100,000 bacteria per c.c., when twenty-four hours old, and suggests that the sale of milk should be so regulated that that containing more than this number per c.c. should be excluded from the market. Rochester, N.Y., has already tried the enforcement of this standard, with good results. In the opinion of Russell, "the practical difficulties to contend with in establishing a milk standard based upon a quantitative bacterial determination are such as to render its general adoption extremely problematical." On the other hand this investigator advocates the employment of the acid test, and postulates that milk should not contain more han 0.2 per cent. figured as lactic acid, and if possible the acidity should be brought down to 0.15 per cent.

To conclude, from what has been brought up before you, it is undoubtedly easy to see the reason for cleanliness in all operations connected with the dairy business. "All the results of scientific investigation," says Fleischmann, "which have found such great practical application in the treatment of disease, in disinfection, and in the preservation of various products, are almost entirely ignored in milking," and the only remedy for this state of affairs is "a campaign of education among the farmers who produce milk, concerning, first, the simple protection of a readily putrescible fluid from pollution with dirt or other elements of decay; and, second, the sanitary protection of milk from infection."

References are not given in this article, should these be wanted, they will be found in the Transactions of the Canadian Institute, Vol. VII., 1902-3, p. 495.

NOTE.—I desire to acknowledge the courtesy of Mrs. Massey, Dentonia, for the use of Figs. 16 and 17; the late Major Alvord, of the United States Department of Agriculture, for Fig. 6; The City Dairy Co. for Fig. 11; The Kjbenhavn Maelkforsyning for Figs. 9 and 10.

DAIRY SCHOOLS OF ONTARIO.

CENTRAL DAIRY SCHOOL.

(In connection with the Ontario Agricultural College.)

Session of December, 1904, and Regular Term of 1905.

H. H. Dean, B.S.A..... Professor of Dairy Husbandry.
Wm. Waddell..... Chief Instructor in Cheesemaking.
A. McKay..... Assistant Instructor in Cheesemaking.
R. W. Stratton..... Instructor in Separators.
C. W. McDougall..... Instructor in Buttermaking.
J. A. McFeeters..... Instructor in Milk-testing.
Miss Laura Rose ..... Instructress in Buttermaking (Farm Dairy.)
George R. Taylor..... Instructor in Hand Separators and Milk-Testing (Farm Dairy.)
A. Griffin..... Instructor in Boilers, Engines, Piping, etc.
F. C. Harrison, B.S.A..... Lecturer and Instructor in Dairy Bacteriology.
R. Harcourt, B.S.A..... Lecturer in Dairy Chemistry.
E G. DeCoriolis, B.S.A..... Demonstrator in Dairy Chemistry.

The December, 1904, Courses.

Two short courses were conducted during this month, one of three weeks for creamery buttermakers, and one of ten days for milk dealers, and milk inspectors. Owing to the large amount of work involved with the regular College Classes in December, it has been decided to drop the courses for this month, and give all our attention to the regular students for the fall term. The milk producers, milk dealers, and milk inspectors course will be held each year beginning about the middle of April. This course is designed to benefit, (1) The man on the farm who is producing milk for town or city trade, or who is producing it for factory or family use. We are hoping to help in securing cleaner and more wholesome milk for all branches of dairying. (2) The man who sells milk will be helped by illustrating the benefits of pasturization and cooling, how to test milk and cream in order that he may have better milk for his customers, and also receive pay according to its value. (3) The milk inspector in towns and cities will be benefited by receiving lessons in the use of the lactometer, Babcock test, and also simple tests for adulteration. We hope to make this course of value to the milk and cream branches of the dairy industry.

The Regular Course of 1905.

Our regular twelve weeks' course from January 3rd to March 24th was an exceedingly good one. It is seldom we have had so many first-class men in the School. A few bright, earnest students set the pace for this class, and nearly all seemed anxious to do their best to secure whatever there was in the course.

Advanced students were given experimental work to do in the various departments. Lessons in the making of cheese boxes were given to all

the factory class. Most of the buttermakers spent considerable time in the Farm Dairy becoming familiar with the hand separators. Practical work in firing boilers economically was a part of the training.

The afternoons of two weeks were spent each at Dairy Chemistry and Dairy Bacteriology. Increased accommodation is needed in these two departments of the College to properly instruct the special classes.

The School is indebted to several members of the College staff for assistance with lectures during the term, but more especially are we indebted to the heads of the Chemical and Bacteriological departments.

We were singularly fortunate during the term in the excellent instructors secured to take charge of the different practical branches of the School. A most harmonious feeling existed between students and instructors. While the attendance during the winter has numbered somewhat less than in some years, when those attending the April courses are added to those already registered, it will be found that the number will be close on to the hundred mark, which has been about our average attendance for some years.

H. H. DEAN,
Superintendent.

WESTERN DAIRY SCHOOL, STRATHROY.

Session 1904-1905.

Geo. A. Putnam, B.S.A.	Director.
Geo. H. Barr	Superintendent.
Jno. H. Scott	Instructor in Cheesemaking.
Frank Herns	Instructor in Milk Testing.
Fred. Dean	Instructor in Butter Making.
J. R. Burgess	Instructor in Separators.
Miss Agnes Smith	Teacher Domestic Science and Home Dairying.
E. G. DeCoriolis, B.S.A.	Chemist.
F. C. Harrison, B.S.A.	Bacteriologist.
J. P. Whitehead, V.S.	Veterinary Science.

The School re-opened December 5th, for the Special Course in Buttermaking, which lasted three weeks. The attendance during this course, although not large, was better than last year. The interest manifested in the work shows that the buttermakers are taking a lively interest in their line of the dairy industry. The regular Dairy School term commenced on January 2nd. The attendance during this course was fifty-six. We regret that many of these remained for part of the course only, yet we are pleased to have so many of the experienced makers come to the school, if only for a few days, to discuss questions which are so interesting to us all. It does the staff good and will no doubt help to make some of the problems that confront cheese and butter maker, easier to overcome. We will be very glad to see the "old boys," in greater numbers in future. The question of pure cultures in cheese and butter making is an important one and special instruction was given the students on this subject.

A great deal of attention was given to the churning of cream at different temperatures; the size of the butter granules when the butter milk was drawn off, and the method of washing the butter. It was thoroughly demon-

strated to the students that the butter-maker can to a very large extent decrease or increase the percentage of overrun by manipulating the churn during the process of churning the cream and washing the butter.

Special attention was given to sampling and testing cream by the Babcock tester, as this method of paying for cream is becoming very general at the creameries in Western Ontario.

Experimental work was carried on daily in the cheese room, in handling all kinds of milk as nearly as possible under factory conditions. Each student spent some time in the engine room firing the boiler and running the engine, also in pipe fitting, soldering, etc.

The Domestic Science department was largely attended, and a keen interest was taken in all the work. The equipment is not sufficient for the number attending to do the work efficiently. Domestic Science was taught three days in the week and Home Dairying three days. Four students took up Home Dairying along with Domestic Science.

One of the most successful terms in the history of the School was brought to a close by the young ladies of the Domestic Science Class giving the students and staff a dainty supper and providing a choice literary program.

GEO. H. BARR,
Superintendent.

EASTERN DAIRY SCHOOL KINGSTON.

Session of 1904-1905.

G. A. Putnam, B.S.A.....Director.
J. W. Mitchell, B.A.....Superintendent.
G. G. Publow.....Instructor in Cheesemaking.
J. H. Echlin.....Assistant Instructor in Cheesemaking.
Jas. Stonehouse.....Instructor in Butter-Making and Separators.
J. Buro.....First Assistant in Butter-Making.
J. Irwin.....Second Assistant in Butter-Making.
J. F. Singleton.....Instructor in Milk-Testing.
W. T. Connell, M.D.....Lecturer in Bacteriology.

The session which has just closed has, for both students and staff, been one of the most satisfactory in the history of the Eastern Dairy School. The extensive additions, alterations, and improvements to the school building have fully doubled its capacity, added greatly to the comfort and accommodation of the students and much enhanced the efficiency of the training given in the different departments of the School. With the increased accommodation that we have to offer, and with the different departments manned by the foregoing exceptionally strong staff of instructors, which we hope to hold practically intact, we feel that the School is in a position to render a fuller and a better service to the dairy industry of Eastern Ontario than has been possible heretofore.

On account of the changes and additions mentioned, the session proper did not open until the New Year. Nevertheless, during the session 137 students in all registered and took work at the School—123 from Ontario, 10 from Quebec, 2 from Prince Edward Island, and 2 from the State of Wisconsin. Our Long Course was well attended and nineteen wrote on the final examination of this course, which examination included both cheese and butter making.

During the session just closed, the students received, in addition to their training in the practical work, two lectures per day, one in the morning from the Superintendent upon General Dairying, in which considerable attention was given to the farm side of the industry, and a second lecture in the afternoon from one of the Instructors upon the work of his department. During the afternoon discussions, considerable attention was given to the judging of cheese and butter.

The Cheese Department was in charge of Mr. G. G. Publow. This being a Dairy School, and not an Experiment Station, the aim has been to teach the students how to make the most and the best cheese and butter from the raw material at hand. Frequently, for demonstration purposes and as an experiment and object lesson for the students, the same milk was divided into different lots and each treated differently during some stage of the making. The results were noted and conclusions drawn as to the best system of handling the milk under consideration. The fermentation test and the acidimeter were in constant use in the Cheese Department and special stress laid upon their value to the cheese-maker.

Just before the beginning of the session we had shipped to the School from Montreal a number of cheese illustrative of the most common defects in Ontario cheese, such as bad finish, cracked rinds, pastiness, too much acid, fruity flavor, etc. Each class was given the opportunity of examining these cheese, and passing judgment upon them, and of having their defects pointed out and the causes and preventives of the same thoroughly discussed. This proved both a strong and an attractive feature of the work taken up in the cheese department and we look for much good to come out of it.

The Separator and Butter departments were merged into one with Mr. J. Stonehouse at its head; and with Mr. Buro as an able assistant to take charge of the separators the work and instruction were carried on most effectively. In addition to using power separators and making butter on the separator creamery plan, a number of hand separators—some ten different makes in all—were made constant use of in the School. Since the cream-gathering creamery system is now so largely in vogue and so many hand separators are in use throughout the country, we deemed it wise to give our students an opportunity of examining, operating, and comparing the different makes of separator on the market. In both the butter and the cheese department the students were constantly trained in making, judging and using cultures or "starters."

Mr. Singleton, our new Instructor in Milk-Testing, proved himself a capable man in his position. The students received a thorough training in the various uses of the Babcock Test and the lactometer, including the detection of adulterations, the determination of the nature and extent of the same, etc.

A full and thorough course of lectures, illustrated by lantern slides, cultures, etc., was given in Bacteriology by W. T. Connell, M.D.

The students of the Long Course received instructions in soldering, pipe-fitting, and the care of boilers and engines.

Respectfully submitted,

J. W. MITCHELL,
Superintendent.

ANNUAL REPORTS

OF THE

Live Stock Associations

OF THE

PROVINCE OF ONTARIO

1904

Dominion Cattle Breeders' Association
Dominion Sheep Breeders' Association
Dominion Swine Breeders' Association
Ontario Poultry Associations
Provincial Winter Fairs

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO)

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

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1905

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TORONTO.

To the Honourable William Mortimer Clark, K.C.,

Lieutenant-Governor of the Province of Ontario.

May it Please Your Honour:

The undersigned begs to present herewith for the consideration of His Honour the Reports of the Live Stock and Poultry Associations for 1904.

Respectfully submitted,

Nelson Monteith.

Minister of Agriculture.

Toronto, 1905.

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Dominion Cattle, Sheep, and Swine Breeders' Associations

REPORT OF THE SECRETARY AT ANNUAL MEETINGS.

The importance of the live stock industry is shown by the following figures taken from the Dominion Census returns of 1901,—

	Canada.	Ontario.
No. of Horses	1,577,493	721,138
No. of Cattle	5,576,451	2,487,806
No. of Sheep	2,510,239	1,046,456
No. of Swine	2,353,828	1,562,696
Total No. of Live Stock	12,018,011	5,818.096
Total value of Live Stock	$275,167,627	$131,827,762
No. of Head of Pure-bred Live Stock	173,303	107,217
Value of Pure-bred Live Stock	$8,802,985	$5,092,002

The special work of the Cattle, Sheep, and Swine Associations is to increase the quantity and improve the quality of our live stock products, and to increase their value to the producer. We have been endeavoring to do this by a system of education, by providing information to producers regarding their products, what the demands of the market are, and in order that these demands may be supplied more intelligently we have endeavored to give as much information as possible as to why a market demands a certain article. Information is also given regarding how to best fill these demands and how to market properly. The addresses and discussions at the Winter Fair at Guelph, and the Eastern Ontario Live Stock & Poultry Show, at Ottawa, cover all classes of stock represented by these associations.

While the interest in the Winter Fairs is kept up, and while large numbers continue to attend and take part in the discussions, the effect of the Fairs is much extended through the attendance of the Farmers' Institute lecturers, who, after absorbing all the information possible, give to thousands throughout the Province, the information obtained at these Fairs. We are working for the improvement of live stock through the auction sales, through the live stock reports, and the Gazette, and through assistance in transportation, as well as through the nomination of the expert judges for the Agricultural Fairs throughout the Province.

It is impossible to estimate the direct value of the work carried on, but the table given below shows the variations during the last few years. There has been a marked increase since 1898 in the number and in the value of cattle, sheep and swine reared and marketed by Ontario farmers. The

figures are taken from the reports of the Ontario Bureau of Industries for the years 1898 to 1904.

		Total on Hand.		Sold or Slaughtered in Year.		
	Date	No.	Value.	No.	Value.	Value per Head.
Cattle.....	...1898	2,215,943	$47,286,254	552,485	$16,121,599	29.18
	...1899	2,318,355	52,938,500	555,583	17,303,426	31.14
	...1900	2,429,330	56,320,810	560,893	18,017,989	32.12
	...1901	2,507,620	59,527,119	610,880	20,286,963	33.21
	...1902	2,562,584	63,517,342	673,544	23,340,908	34.65
	...1903	2,674,261	69,289,924	719,911	25,867,813	35.93
	...1904	2,776,304	72,821,003	730,212	26,342,872	36.08
Sheep.....	...1898	1,677,014	6,499,695	664,239	2,460,379	3.70
	...1899	1,772,604	7,315,729	665,238	2,629,201	3.95
	...1900	1,797,213	7,711,496	690,058	2,872,609	4.16
	...1901	1,761,799	7,772,793	729,148	3,103,513	4.26
	...1902	1,715,513	7,634,284	732,994	3,110,882	4.24
	...1903	1,642,627	7,228,498	727,850	3,074,393	4.22
	...1904	1,455,482	6,425,100	687,144	2,896,391	4.22
Swine.....	...1898	1,640,787	8,720,242	1,592,697	11,852,535	7.44
	...1899	1,971,070	10,180,338	1,875,466	14,157,394	7.55
	...1900	1,771,641	9,598,153	2,056,049	15,800,799	7.69
	...1901	1,491,885	9,298,712	1,973,405	17,548,490	8.89
	...1902	1,684,635	11,262,265	1,991,907	20,154,190	10.12
	...1903	1,977,386	13,023,743	2,168,598	22,532,862	10.39
	...1904	2,008,984	12,921,743	2,240,083	22,665,164	10.12

Ontario Provincial Winter Fair.

Prizes were given in the different departments for cattle, sheep, swine and poultry as in previous years. In addition prizes were offered for a Judging Competition for farmers and farmers' sons under twenty-five years of age. A great interest was taken in the competition by the students at the Ontario Agricultural College, and it will probably be the means of inducing them to give more attention to their live stock work, and to take more interest in the live stock at the Show. The money for the prizes, amounting to two hundred and twenty dollars, was paid by the Live Stock Commissioner. Professors Day and Cumming were in charge of the Competition.

A department for Seed Grain was also added, through the Canadian Seed Growers' Association. While not as large as we hope to see it in the future, a great deal of interest was taken in this class; also in the lectures specially devoted to this subject.

We were also able to make addition to the fittings in the building, wire pens in the sheep department being put up by the Canadian Steel and Wire Company of Hamilton. A couple of rows of pens were also erected on the ground floor, and arrangements have been made to have this work completed for the Show next December.

The following figures give information regarding entries, etc., at recent exhibitions:—

Date.	No. of Entries.	Entry Fees.	Total Value Prems. Paid.	Gate. Receipts.
1900	3019	$1782 85	$5829 50	$1147 70
1901	3461	2114 75	6870 50	1761 00
1902	3945	2118 00	7750 00	1860 45
1903	4061	2401 50	7986 75	1998 25
1904	4319	2468 65	8188 50	1843 10

NOTE.—Figures for 1904 include Seed Grain and Judging Competition.

EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1904.

This exhibition has followed closely along the lines of the Winter Fair at Guelph. Owing to the snow blockade last March, the entries were much smaller than they would otherwise have been. The holding of this Show is very satisfactory and should, before long, make its influence felt in that portion of the Province. It is gratifying to know that the work done at the Winter Fair at Guelph has been considered of so much advantage to the live stock industry, that we have been requested to extend the work to the eastern portion of the Province.

The following are the entries and some particulars regarding the Show:

Place.	Entries in Deprtments.	Entry Fees.	Total Value Premiums Paid.	Gate Receipts.
Ottawa	Cattle ..... 41 Sheep ... ... 70 Swine ... ... 86 Dairy Cattle .... 17 Poultry ... .1425	$873 35	$3173 50	$372 80

The next show will be held March 6th to 10th next.

AUCTION SALES.

At the last annual meeting it was decided that the sales throughout the Province, held under the auspices of the Live Stock Associations, should be held under the management of some local organization, which would, upon certain conditions being complied with, be given assistance in holding the sales. Arrangements have already been made for holding sales of beef cattle during the month of March, at Guelph, Ottawa and Port Perry. Out of a grant specially made for this purpose by the Ontario Department of Agriculture, we are in a position to do some extensive advertising throughout Western Canada. We are also in a position to offer considerable inducement to persons in the West who may wish to purchase stock at these sales. The sales will be held in a series, so that it will be convenient for any person who wishes to purchase at more than one of the sales, to do so without loss of time.

Although a few pigs were entered and sold at the sales held at Guelph and Ottawa in February of 1901 and 1902, these sales have been confined almost entirely to cattle. It is well worth considering whether sales of sheep and pigs, either together or separately, could profitably be held some time during the present year. If this is thought desirable, in addition to the time

and place, it should be considered how many of each breed should be sold, or whether only one breed should be included at one sale, and that other breeds be sold at different dates.

Sheep Industry.

The prospects for sheep breeders are very bright, and now would be an exceedingly good time for a campaign to induce the raising of more sheep on the farms in our province. How should this be done? The sheep sales would be a means of advertising this industry. I would suggest, if it is decided to hold a sale or sales of sheep, that arrangements be made to have a meeting devoted to addresses and papers showing the advantages of keeping sheep, and giving all possible information regarding profits and marketing. It would have a good effect on the prices at the sale, and would have undoubted influence in the direction of sheep being more generally kept.

Bacon Industry.

For a number of years past there has been a special effort made to induce breeders and feeders to produce and finish the sort of hog required by the pork packers. The greatest drawback at the present time appears to be that hogs are bought at a flat rate, without grading. There is, directly, no inducement to produce what the market requires. Indirectly there is, because the higher the percentage of hogs marketed that grade as No. 1, the higher will be the average price; but no matter how high the average price, the producer of No. 1 hogs gets no more than the producer of hogs grading as No. 2. One man is getting the benefit of the other man's work. The cause of this is apparently on account of the competition of the buyers and the packing establishments. Can we expect, under these conditions, to make much further improvement in the quality of our bacon? We could certainly expect to if we were in a position to state to the producer: "If you have a certain sort of hog to market, you will get a certain price; if you have not you will get so much less." Can anything be done to remedy this? I would like to have a discussion to see if some suggestion can be made whereby the breeder and feeder may receive an equivalent for the intelligence and care put into his work.

Swine Records.

Particulars regarding pedigrees and transfers recorded, registration fees and memberships by Provinces during 1904:

	Pedigrees.	Transfers.	Registration Fees.	M'mberships.
Ontario	3031	262	$1829 05	228
Manitoba	547	119	327 50	50
North West Territories	132	24	86 80	21
British Columbia	52	10	31 00	6
Quebec	161	14	108 25	18
New Brunswick	37	4	22 50	7
Nova Scotia	53	4	31 50	4
Prince Edward Island	51	1	30 20	7

N.B.—A few Memberships, Registrations, etc., were received from the United States.

Swine Record in 1904.

Berkshires	1190
Yorkshires	2105
Chester Whites	304
Poland China	48
Tamworth	353
Duroc-Jersey	46
Essex	18
	4064

Transfers (all breeds)..... 438

Report of Swine Prizes at Winnipeg and Toronto Exhibitions.

At the last annual meeting it was decided to donate $300 to the Dominion Exhibition held at Winnipeg in 1904. These prizes were offered according to the following classification, for Berkshires, Yorkshires, Tamworths and Chester Whites and Poland Chinas.

Section.

1. Senior Champion Boar, 1 year and over.
2. Junior Champion Boar, under 1 year.
3. Senior Champion Sow, 1 year and over.
4. Junior Champion Sow, under 1 year.
5. Grand Champion Boar.
6. Herd, Boar and three females, any age, owned by exhibitor.

At the Canadian National Exhibition, Toronto, the $300 donated by the Swine Breeders' Association, was added to the general classification, $370 being added to the classification by the Exhibition Association over the amount given in 1903, and $646 over what was given in 1902. The swine prizes at Toronto for 1902, 1903 and 1904 were $1,494, $2,070, $2,440 respectively. The $300 donated by this Association is included in the sums mentioned for 1903 and 1904.

Credit Purchasers.

A question has come up at different times whether or not arrangements could be made to procure information regarding the financial standing and reputation of persons residing at a distance, who might wish to purchase stock on credit. This would probably be a great convenience in many cases. Some of the breeders would no doubt have facilities for obtaining this information; others may not be able to procure it except with considerable trouble, and then might not be sure of its reliability. I would like to know what demand there is for information of this sort; would a service of this kind be of much advantage to the members generally, and what would it be worth to them?

Railway Transportation Pure-Bred Stock.

The following regulations referring to the half rate given on less than car lots of registered live stock between local points on railways in Canada, have been decided on by the railways. According to this memorandum, these regulations take effect on the 1st of June next, and should receive the consideration of the breeders of pure-bred live stock.

"All record certificates accepted by the railroads must be of uniform size and appearance, and bear the seal of some central body recognized as reliable by the Dominion Department of Agriculture."

"All pure-bred animals carried at the reduced rate must be supplied with a shipping certificate bearing a seal similar to that attached to the record certificate."

"The shipping certificate shall become the property of the railroad company, and shall be attached to the waybill."

"The record certificate must in all cases be presented to the railroad agent at shipping point, and must correspond with the shipping certificate and bear on the back thereof a statement showing the movement over the railroad of the animals recorded."

"In the case of record certificates already issued, arrangements must be made before shipping the animals to return these to the proper authorities and have a suitable record certificate and shipping certificates made out."

"The present conditions to remain in force until the 1st of June, 1905. All record associations and breeders not complying with the above conditions shall be refused reduced rates."

General.

During the present year every effort should be put forth to carry to a successful issue the work undertaken by our associations. Each member should feel his personal responsibility in planning methods for encouraging the live stock industry, and should perform his part faithfully and for the public good. Great care should be exercised in the selection of expert judges for the different breeds, in order that there may be no doubt that wherever these expert judges may be asked to judge, those interested may receive proper and accurate information, as to proper type and conformation.

Each member should take a special interest in the agricultural fair held in his district, and should use every means in his power to see that the fair is so conducted that the greatest possible good may result. He should take part in the Farmers' Institute meetings in his local district, so that others may have the benefit of his experience. Methods which he has found successful, his neighbor should be induced to try. There are many ways in which members can do work which is of advantage to the live stock industry, and which will improve the quality of our live stock. Let each member so work that when the time for another annual meeting comes around, each one may feel he has done his part, and done his best towards advancing the great industry which these Live Stock Associations represent.

Dominion Cattle Breeders' Association

ANNUAL MEETING.

The annual meeting of the Dominion Cattle Breeders' Association was held in the Palmer House, Toronto, on February 2nd, 1905, at 2 p. m. President Arthur Johnston occupied the Chair.

On motion, the minutes of the last annual meeting were taken as read.

The Secretary then read his annual report, which was taken up clause by clause and adopted with the exception of the part relating to "Credit Purchasers." After a short discussion on this clause it was resolved: "That this clause 'Credit Purchasers' stand for future consideration."

Lieut.-Col. J. A. McGillivray moved, seconded by M. Richardson, "That this Association, comprising representatives from the various Cattle Breeders' throughout Canada, approve of the Order-in-Council of the Dominion Government, bearing date of the 30th day of March last." Carried.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, outlined the plan of nationalizing the various Live Stock Records. Lieut.-Col. J. A. McGillivray and Arthur Johnston afterwards spoke encouragingly of the benefits to be derived through having National Records. On motion it was resolved:

"That this Association, in annual meeting assembled, comprised of representatives from the various Cattle Breeders' associations, approve of the scheme of nationalization that has been laid before the various breed associations, and believe it to be in the best interests of the country."

It was resolved that the nomination of judges in the Cattle Department at the Provincial Winter Fair be left in the hands of the Winter Fair Board.

Moved, "That all the breed associations be represented on the board of the Cattle Breeders' Association by those nominated by the various associations." Carried.

FINANCIAL STATEMENT OF THE DOMINION CATTLE BREEDERS' ASSOCIATION.

For the Year Ending December 31st, 1904.

Receipts.		Expenditures.	
Members' fees	$ 916 50	Balance due Treasurer, as per last report	$ 250 24
Legislative Grant	2,500 00	Cash paid for prizes	1,930 50
		Secretary's Salary	350 00
		Director's fees and expenses...	124 38
		Postage and stationery	73 56
		Printing	16 00
		Advertising	21 17
		Cost of reporting	5 00
		Typewriting and office exp's..	471 33
		Telegraph, telephone & expr's	17 26
		Grant re stock cars	50 00
		Auditor	5 00
		Miscellaneous items	4 40
		Cash on hand	97 66
	$3,416 50		$3,416 50

Audited and found correct.
J. M. Duff, Auditor.

Arthur Johnston, President.
A. P. Westervelt, Treasurer.

OFFICERS FOR 1905.

President ..... A. W. Smith, Maple Lodge.
Vice-President ..... Lieut.-Col. J. A. McGillivray, Bedford Park.
Secretary-Treasurer ..... A. P. Westervelt, Toronto.

Vice-Presidents (Representing the different Provinces).

Ontario ..... Arthur Johnston, Greenwood.
Northwest Territories ..... C. W. Peterson, Calgary, Alta.
Quebec ..... R. Ness, Howick, Que.
Maritime Provinces ..... M. Cumming, Truro, N.S.
British Columbia ..... G. H. Hadwen, Duncan's, B. C.

Directors:
Shorthorns: John Isaac, Markham; T. E. Robson, Ilderton. Herefords: W. H. Hunter, The Maples: Alf. Stone, Guelph. Aberdeen-Angus: Jas. Bowman, Guelph; J. W. Burt, Coningsby. Galloways: Lieut.-Col. D. McCrae, Guelph; Robt. Shaw, Brantford. Ayrshires: H. Wade, Toronto; W. W. Ballantyne, Stratford. Holstein-Fresian: Matt. Richardson, Caledonia; G. W. Clemons, St. George. Jerseys: Thompson Porter, Mt. Dennis; F. L. Green, Greenwood. General Director; Chas. Calder, M.P.P., Brooklin. Ontario Agricultural College: Prof. G. E. Day, Guelph; President Creelman, Guelph. Live Stock Commissioner: F. W. Hodson, Ottawa.

Auditor: J. M. Duff, Guelph.

Delegates to Fair Boards:
Toronto ..... Lieut.-Col. J. A. McGillivray, Bedford Park.
A. P. Westervelt, Toronto.
Ottawa ..... N. F. Wilson, M. P., Cumberland.
F. W. Hodson, Ottawa.
London ..... T. E. Robson, Ilderton.
A. W. Smith, Maple Lodge.
Provincial Winter Fair ..... G. W. Clemons, St. George.
J. T. Gibson, Denfield.
John Bright, Myrtle.
Eastern Ontario Live Stock and Poultry Show ..... A. W. Smith, Maple Lodge.
J. H. Grisdale, Ottawa.
N. F. Wilson, M.P., Cumberland.

MEMBERS OF DOMINION CATTLE BREEDERS' ASSOCIATION, 1904-05.

Name and Address.	Breed.
Armstrong, Lewis, Fergus	Grades.
Armstrong, Jas., Speedside	Shorthorns.
Armstrong, Geo., Speedside	Shorthorns.
Armstrong, Geo. A., Teeswater	Shorthorns.
Argo, Wm., Eden Mills	Shorthorns.
Amos & Son, Geo., Moffat	Shorthorns.
Acres, J. G., Vernon	Holstein-Friesians.
Armstrong M., Tillsonburg	Holstein-Friesians.
Anderson, Thos., Lyn	Holstein-Friesians.
Armstrong, Wm., Locust Hill	Holstein-Friesians.
Ashby, Antoine, Marieville, Q.	Holstein-Friesians.
Arnold, J. B., Easton's Cor.	Holstein-Friesians.
Atkinson, A. B., Stevenson, B. C.	Holstein-Friesians.
Agricultural School, L'Assomption, Que.	Ayrshires.
Agricultural School, Ste. Annes de Porataire, Que.	Ayrshires.
Alexander, Joseph, Mascouche Rapids, Que.	Ayrshires.
Aikenhead, John, Hartney, Man.	Ayrshires.
Anderson, Robt., North Georgetown, Que.	Ayrshires.
Archibald, C. A., Truro, N. S.	Ayrshires.
Armstrong, Jas., Shawville, Que.	Ayrshires.
Aylwin, Chas. S., Freeman	Ayrshires.
Benham & Sons, J. W., Rockwood	Shorthorns.
Bennett, Walter, Chatham	Herefords.
Blyth, C. & G., Marden	Shorthorns.
Bolton, Frank I., Marden	Shorthorns.
Boles, Thos., Eden Mills	Shorthorns.
Boyd, Mossom, Bobcaygeon	Herefords.
Burnett, W. A., Salem	Shorthorns.
Bowman, Jas., Guelph	Aberdeen-Angus.
Burt, J. W., Coningsby	Aberdeen-Angus.
Bryne, John A., London West	Aberdeen-Angus.
Bell, J. J., Waverley	Aberdeen-Angus.
Bailey, W. J., Nober	Holstein-Friesian.
Baird, Chas., Motherwell	Holstein-Friesian.
Barber, Frank, Villa Nova	Holstein-Friesian.
Barnett, Robert, Curries	Holstein-Friesian.
Beale, T. R., Athens	Holstein-Friesian.
Beck, S. R., South Cayuga	Holstein-Friesian.
Bedggood, Thos. E., Crumlin	Holstein-Friesian.
Beemer, John, St. George	Holstein-Friesian.
Bell, Jas. R., Athelstan, Que	Holstein-Friesian.
Bell, W. T., Willetsholme	Holstein-Friesian.

MEMBERS OF DOMINION CATTLE BREEDERS' ASSOCIATION—Continued.

Name and Address.	Breed.
Bollert, H., Cassel	Holstein-Friesian.
Bonsall, H., Chemainus, B.C.	Holstein-Friesian.
Brown, D. H., Beith, Que.	Holstein-Friesian.
Brown, F. L., Beith, Que.	Holstein-Friesian.
Brown, W. W., Lyn	Holstein-Friesian.
Brown, J. & Son, Galt	Shorthorns.
Buchanan, John, Elia	Holstein-Friesian.
Bullard, B., Plum Hollow	Holstein-Friesian.
Burr, Peter, Bloomfield	Holstein-Friesian.
Burt, D., St. George	Holstein-Friesian.
Ballantyne, W. W., Stratford	Ayrshires.
Baxter, D., North George-town, Que.	Ayrshires.
Begg, O. V., Moose Creek	Ayrshires.
Bell & Sons, J. H., Farnham Centre, Que.	Ayrshires.
Bell, Jas. M. D., Dorchester St., Montreal	Ayrshires.
Black, Fred. S., Amherst, N.S.	Ayrshires.
Blue, John, Capelton, Que.	Ayrshires.
Bigelow, Saml., Canning, N.S.	Ayrshires.
Bogart, J. W., Morewood	Ayrshires.
Bonne-enfant, Joseph, St. Paul de Ermite, Que.	Ayrshires.
Brown, Alf., Hemmingford, Q.	Ayrshires.
Bryson, Jas., Brysonville, Q.	Ayrshires.
Bullock, W. J., Lakefield	Ayrshires.
Belanger, Maxim, St. Eustache, Que	Ayrshires.
Cray, Alex., Everton	Shorthorns.
Cleghorn, John W., Mosboro.	Shorthorns.
Cowan, Jas. & Son, Guelph.	Shorthorns.
Copeland, Ezra, Rockwood	Shorthorns.
Currie, L. D., Hillsburg	Shorthorns.
Currie, John, Eramosa	Shorthorns.
Came, F. E., Montreal, Que.	Holstein Friesians.
Cameron, J. W., Perth	Holstein Friesians.
Campbell, Daniel, Vernon	Holstein Friesians.
Campbell, Robt., Roseneath.	Holstein Friesians.
Carlaw, T. B., Warkworth	Holstein Friesians.
Carlisle, G. T., Newtonbrook	Holstein Friesians.
Caughell, G. H., Aylmer	Holstein Friesians.
Charlton, T. W., St. George.	Holstein Friesians.
Clarkson, John, Summerville	Holstein Friesians.
Clemons, G. W., St. George	Holstein Friesians.
Cohoe, J. W., New Durham	Holstein Friesians.
Connor, Holland, Gananoque Jct.	Holstein Friesians.
Craik, Robt., M.D., Montreal, P. Q.	Holstein Friesians.
Countryman, G. W., Tweed.	Holstein Friesians.
Curtis, Alfred, Willetsholme.	Holstein Friesians.
Curtis, W. J., Willetsholme	Holstein Friesians.
Cavers, Jas. P., Ormstown, Q.	Ayrshires.
Cumberland, Barlow, Port Hope	Ayrshires.
Callendar, Jas., North Gower	Ayrshires.
Campbell, A., Howick, Que.	Ayrshires.
Campbell, John R., Vernon.	Ayrshires.
Central Experimental Farm, Ottawa.	Ayrshires.
Champion, W. M., Reaburn, Man.	Ayrshires.
Clark, J. G., Ottawa.	Ayrshires.
Clark, Alex., Brinston's Cor.	Ayrshires.
Cleland, Archie, Hemmingford, Que.	Ayrshires.
Cleugh, Wm., Campbellford	Ayrshires.
Cottingham, Jas., Ormstown, Que.	Ayrshires.
Crockett, T., Danville, Que.	Ayrshires.
Craighton, J. C., Hawley	Ayrshires.
Cumming, D., Russell	Ayrshires.
Cumming, A. T., Heckston	Ayrshires.
Cumming, Donald, Lancaster.	Ayrshires.
Countu, Edward, Ste. Elizabeth, Que	Ayrshires.
Clark, Wm., Meyersburg	Ayrshires.
Cain, Fred. L., 23 St. Helen St., Montreal.	Ayrshires.
Campbell, John, Dalmeny	Ayrshires.
Clark, Jas., Campbellford	Ayrshires.
Cameron, A. & W., Oak Lake. Man.	Hereford.
Dickieson, John, Eramosa	Shorthorns.
Dods, David N., Bensfort.	Aberdeen-Angus.
Dick, P. A., Ashgrove	Aberdeen-Angus.
Davis, George, Alton	Aberdeen-Angus.
Davidson, Thos., Spring Valley	Holstein-Friesians.
Dougherty, J.W., New Durham	Holstein-Friesians.
Deland, A. N., St. Jean, Que.	Holstein-Friesians.
Duncan, W. A., Emery	Holstein-Friesians.
Dundon, John, St. Roch, Que.	Holstein-Friesians
Davies, Robt., Toronto	Ayrshires.
Dawes & Co., Lachine, Que.	Ayrshires.
Denyes, H. K., Foxboro	Ayrshires.
Denis, Arsene, St. Norbert, Q.	Ayrshires.
Deschamp, Louis, St. Paul L'Hermite, Que.	Ayrshires.
Dingwall, Jas., Williamstown.	Ayrshires.
Drummond, A., M.D., Petite Cote, Que.	Ayrshires.
Drysdale, Thos., Allen's Corners, Que.	Ayrshires.
Dundon, John, Hedley Lodge, St. Roch, Que.	Ayrshires.
Dunfield Bros., Dauphin, Man.	Ayrshires.
Deschamp, Philias, St. Paul. L'Hermite, Que.	Ayrshires.
Davidson, E. G., Ayers Flat, Q.	Ayrshires.
Douglas, John H., Warkworth	Ayrshires.
Eldridge, John, Hepworth Sta.	Aberdeen-Angus.
Edwards & Co., W. C., Rockland	Shorthorns and Ayrshires.
Elliott, John, Marden	Shorthorns.
Elliott & Son, W. R., Guelph.	Shorthorns.
Elliott, John, Guelph	Grades.
Ede, P. D., Oxford Centre	Holstein-Friesians.
Edwards, John, Algonquin	Holstein-Friesians.
Elie, Jos., La Baie, Que.	Holstein-Friesians.
Ellis, Wm. G., Bedford Park.	Holstein-Friesians.
Easton Bros., Charlottetown, P. E. I.	Ayrshires.
Empsey, Adam, Springfield	Ayrshires.
Elliott & Son, Wm., Porter's Hill	Herefords.
Fairbairn, H. K., Thedford.	Shorthorns.
Fleming, Wm., London West.	Shorthorns.
Fargey, Peter, Belleville	Holstein-Friesians.
Farmer, F. F., Three Rivers, Que.	Holstein-Friesians.
Ferland, Jos. B., Three Rivers, Que.	Holstein-Friesians.
Fierheller, E. E., Mt. Elgin.	Holstein-Friesians.
Fletcher, Jos., Oxford Mills.	Holstein-Friesians.
Foster, A. D., Halloway.	Holstein-Friesians.
Fry, C. C., Bright	Holstein-Friesians.
Farlinger, W. K., Morrisburg	Ayrshires.
Fisher, Hon. Sydney, Knowlton, Que.	Ayrshires.
Fox, M. C., Cobourg	Ayrshires.
Fulton, Geo., Fulton Mills	Ayrshires.
Fisher, Geo. E., Chatham, N.B.	Ayrshires.
Fyles, F. F., Abercorn, Que.	Ayrshires.
Fleming, Hy, Craigleith	Herefords.
Found, John, Oshawa	Herefords.
Glennie, Wm., Eramosa	Shorthorns.
Gowanlock, John A., Forest.	Herefords.

MEMBERS OF DOMINION CATTLE BREEDERS' ASSOCIATION—Continued.

Name and Address.	Breed.
George, E. D., Putnam	Holstein-Friesians.
George, H. E., Crampton	Holstein-Friesians.
Gibson, T. M., Newcastle	Holstein-Friesians.
Gies, C. R., Heidelberg	Holstein-Friesians.
Gilroy, G. A., Glen Buell	Holstein-Friesians.
Glass, Geo. O., Sweetsburg, Q.	Holstein-Friesians.
Glazier, D. N., Brockville	Holstein-Friesians.
Green, J. A., Athens	Holstein-Friesians
Gaw, Jas., Sheffordvale, Que.	Ayrshires.
Gibbons, W. T., Northcote	Ayrshires.
Girsward, Eli, St. Victoire, Q.	Ayrshires.
Goodliffe, Syd. T., Sussex, N. B.	Ayrshires.
Greenshields, J. N., Danville, Que.	Ayrshires.
Greenway, Hon. Thos., C., Crystal City, Man.	Ayrshires.
Greig, Wm., Allan's Corners, Que.	Ayrshires.
Gouin, P. A., Trois Riviere, Que.	Ayrshires.
Girsward, Joseph, St. Ours, Que.	Ayrshires.
Girsward, Adolphe, St. Barnate, Que.	Ayrshires.
Gordon, Hector, Howick, Que.	Ayrshires.
Gillies, Wm., Robb	Herefords.
Guy, S. W., Griersville	Herefords.
Hales, Alf., Guelph	Shorthorns.
Harding, R. H., Thorndale	Shorthorns.
Hamilton, W., Guelph	Grades.
Hauser, Ignatius, Weisenburg	Shorthorns.
Hood, G. B., Guelph	Grades.
Honston, John, Chatham	Shorthorns.
Howard, John L., Sutton	Shorthorns.
Hall, W., Washington	Aberdeen-Angus.
Hallman, A. C., Breslau	Holstein-Friesians.
Hanton, A. R., Frankville	Holstein-Friesians.
Harding, Jas., Graham's Road, P. E. I.	Holstein-Friesians.
Harrison, Geo., Kincardine	Holstein-Friesians.
Hardy, H., Bowesville	Ayrshires.
Hunter, Robt., Maxville	Ayrshires.
Hunter, Wm., Maxville	Ayrshires.
Hunter, W. H., The Maples	Herefords.
Harrison, Jas. E., Kincardine	Holstein-Friesians
Hartley, Henry, Norwich	Holstein-Friesians
Hartley, Miles, Norwich	Holstein-Friesians
Hartley, Thos., Downsview	Holstein-Friesians
Hartley, W. A., New Durham	Holstein-Friesians
Harwood, L. de L., Vaudreuil, Que.	Holstein-Friesians
Hawse, W. H., Athens	Holstein-Friesians
Herrick., J. E. K., Abbotsford, Que.	Holstein-Friesians
Harriott, Jas., Souris, Man.	Holstein-Friesians
Herron, J. H., Courtland	Holstein-Friesians
Hicks, R. F., Newtonbrook	Holstein-Friesians
Hewitt, Isaac, Plattsville	Holstein-Friesians
Holgate, John A., Foxboro	Holstein-Friesians
Higginson, Wm., Inkerman	Holstein-Friesians
Honey, R., Brickley	Holstein-Friesians
Hoover, A. Jr., Woodbridge	Holstein-Friesians
Hoops, Benj., Campbellford	Holstein-Friesians
Hoskins, Thos., The Gully	Holstein-Friesians
Howe, F., Crampton	Holstein-Friesians
Hubbs, Louis P., Hillier	Holstein-Friesians
Hunter, Wm., Langley, B. C.	Holstein-Friesians
Hamilton, John, Grand Ferrier, Que.	Holstein-Friesians
Hardy, Wellington, Roland, Man.	Ayrshires.
Hay, Wm., Howick, Que.	Ayrshires.
Hearn, Michael, Burk, N. Y.	Ayrshires.
Hendy, Charles, Campbellford	Ayrshires.
Hill, Geo., Delaware	Ayrshires.
Hodson, F. W., Ottawa	Ayrshires and Herefords.
Howden, John, St. Louis de Gonzague, Que.	Ayrshires.
Hume & Co., A., Menie	Ayrshires.
Hunt, John, Russell	Ayrshires.
Hunter & Son, Robt., Maxville	Ayrshires.
Hunter, Mrs. W. H., Renton, Man.	Ayrshires.
Hudson, John, Morton	Ayrshires.
Harkness & Sons, Irena	Ayrshires.
Hudson, Arch., Soperton	Ayrshires.
Hyacinthe, Niousseau, Berthier, Que.	Ayrshires.
Hardy, C., Bowesville	Ayrshires.
Hammall, W. H., Beeton	Herefords.
Hinde & Sons, Wm., Harriston	Herefords.
Henry, T. G., Mono Mills	Herefords.
Hunter, A. S., Durham	Herefords.
Imerson, C. J., Lyn	Ayrshires.
Innes, P., Cold Brook Station, N. S.	Ayrshires.
Irving, Archie, Scotston, Que.	Ayrshires.
Irving, Thos., North Georgetown, Que.	Ayrshires.
Jeffrey, Alex., Whitby	Shorthorns.
Jeffs & Son, E., Bond Head	Shorthorns.
Johnston, J. J., Lockport, N. Y.	Shorthorns.
Jakes, J. C., Merrickville	Holstein-Friesians
Johnston, J. W., Sylvan	Holstein-Friesians
Johnson, Wm., Delta	Holstein-Friesians
Johnston, Henry, Frankville	Holstein-Friesians
Johnston, Wesley, Chesterville	Holstein-Friesians
Jones, D., Jr., Villa Nova	Holstein-Friesians
Jackson, W. R., Buffalo, N.Y.	Ayrshires.
James, J. A., Nilestown	Ayrshires.
Jeffries, W. A., Sussex, N.B.	Ayrshires.
Jones, C. A., Bedford, Que.	Ayrshires.
Jackson, John S., Ramona	Herefords
Jenkins, Jos., Pearcley	Herefords
Kains, Arch., Byron	Ayrshires.
Kennedy & Sons, Archie, Vernon	Ayrshires.
Kinsey, Joseph, Doon	Ayrshires.
Knight, Jos., Eginburg	Ayrshires.
Kansas State Agr. College, Manhattan, Kas.	Ayrshires.
Kelly, Arthur, Kelvin	Holstein-Friesians.
Kennedy, A., Ayr	Holstein-Friesians.
Kincaid, C. A., Barriefield	Holstein-Friesians.
Kitchen, S. G., St. George	Holstein-Friesians.
Kay, W. F., Philipsburg	Ayrshires.
Lachapelle, Edward, St. Paul L'Hermite, Que.	Ayrshires.
Leslie & Pearen, Acton	Shorthorns.
Leask, James, Greenbank	Shorthorns.
Lindsay, Jas., Fergus	Shorthorns and Jerseys.
Lyons, S. J., Norval	Shorthorns.
Lyons, T. & Son, Alma	Shorthorns.
Laidlaw, W. H., Aylmer	Holstein-Friesians.
Laing, Thos., Eburne, B. C.	Holstein-Friesians.
Lea, Walter M., Victoria, P. E. I.	Holstein-Friesians.
Lee, J. W., Simcoe	Holstein-Friesians.
Logan, H. Lorne, Amherst Point, N. S.	Holstein-Friesians.
Logan, Stanley A., Amherst Point, N. S.	Holstein-Friesians.
Loucks, John E., Frankville	Holstein-Friesians.

MEMBERS OF DOMINION CATTLE BREEDERS' ASSOCIATION.—Continued.

Name and Address.	Breed.
Lachapelle, Nap., St. Paul L'Hermite, Que.	Ayrshires.
Lamarche, Horace, St. Esprit, Que.	Ayrshires.
Langelier, Gus. A., Quebec, Que.	Ayrshires.
Lavalle, Paul, Berthier, Que.	Ayrshires.
Legris, N., St. Leon Maskinonge, Que.	Ayrshires.
Leitch, Davis, Cornwall	Ayrshires.
Logan, J. W., Allen's Corners, Que.	Ayrshires.
Lussier, Alphonse, St. [illegible]les Richelieu, Que.	Ayrshires.
Liddycoat, N. D., Clappison's	Ayrshires.
Locke, John, Campbellford	Ayrshires.
Leach, R. & J., Watford	Herefords.
Leach, Wm. & Robt., Watford	Herefords.
Lee, R. S., Williamsford	Herefords.
Leonard, Wm., Forest	Herefords.
Little, Jas., Vanvlack	Herefords.
Lovering, J. A., Lovering	Herefords.
Meyer, A. E, Guelph	Shorthorns.
Mackie, Geo., West Montrose	Shorthorns.
Macklin, C. W., Centreton	Holstein-Friesians.
Macklin, S., Streetsville	Holstein-Friesians.
Mallory, B., Frankford	Holstein-Friesians.
Mallory, J. M., Bloomfield	Holstein-Friesians.
Manhard, G. H., Fairfield East	Holstein-Friesians.
Martin, R. B., Elmira	Holstein-Friesians.
Mittlefehldt, A., Elcho	Holstein-Friesians.
Montle, J. M., Stanstead, Que.	Holstein-Friesians.
Montmorency, George de, Beaconsfield	Holstein-Friesians.
Moorhead, Jas. G., Ventnor	Holstein-Friesians.
Mott, Weldon D., Lynn	Holstein-Friesians.
Moxley, Jas. H., Tilley	Holstein-Friesians.
Munroe, D., Winnipeg, Man.	Holstein-Friesians.
Mackie, Wm., Agassiz, B.C.	Ayrshires.
Massey, W. E. H., Estate, Coleman	Ayrshires.
Massicotte, Clair, St. Prosper, Que.	Ayrshires.
Masseau, F., Nicolet, Que.	Ayrshires.
Mellick, Aaron, Smithville	Ayrshires.
Miller, Wm., Marshfield, P.E.I.	Ayrshires.
Model Farm, Compton, Que.	Ayrshires.
Morden, A. A., Wellington	Ayrshires.
Moussier, A., Berthier, Que.	Ayrshires.
Muir, G. H., Bougie, Que.	Ayrshires.
Muir, S. Archie, Huntingdon, Que.	Ayrshires.
Murphy, R. G., Elgin	Ayrshires.
Mackeracker, D. G., Howick, Que.	Ayrshires.
Mills, Thos. J., Maria, Que.	Ayrshires.
Marien, D. A., Montreal, Que.	Ayrshires.
Morrison, John R., Burnbrae.	Ayrshires.
Montgomery, G. H., Phillipsburg, Que.	Ayrshires.
Mackie, R. J., Oshawa	Herefords.
McDermid, J. A., Stayner	Herefords.
MacIntyre, G., Renfrew	Holstein-Friesians.
McFarlane, John, Eden Mills	Shorthorns.
McCrae, D., Guelph	Galloways.
McQueen, Jos., Elora	Shorthorns.
McKinnon, R. W., Coningsby	Shorthorns.
McGillivray, J. A., Bedford Park	Shorthorns.
McDougall, H., Guelph	Herefords and Aberdeen-Angus.
McCorkindale, John, Guelph	Shorthorns.
McCrea, J. L., Brockville	Holstein-Friesians.
McCuaig, M., Vankleek Hill	Holstein-Friesians.
McDonald, Allan, Ormond	Holstein-Friesians.
McDonald, John, Dartford	Holstein-Friesians.
McDonald, Peter A., Ormond	Holstein-Friesians.
McGregor, John, Constance	Holstein-Friesians.
McKillican, W. E., Vankleek Hill	Holstein-Friesians.
McLean, J. H., Inkerman	Holstein-Friesians.
McMillan, D. J., Laggan	Holstein-Friesians.
McNeil, C. A., Gananoque	Holstein-Friesians.
McKinnon, A., Guelph	Aberdeen-Angus.
McLoud, Jas. A., Plainville	Aberdeen-Angus.
McKinnon, R. W., Coningsby	Aberdeen-Angus.
McCallum, T. D., Danville, Q.	Ayrshires.
McCartney, Thos, Longburn, Man.	Ayrshires.
McDonald, John, New Glasgow, N. S.	Ayrshires.
McDowell, D. H., Compton, Q.	Ayrshires.
McFarlane, D. A. & S. A., Kelso, Que.	Ayrshires.
McFarlane, Robt., Riverfield, Que.	Ayrshires.
McKee, H. & J., Norwich	Ayrshires.
McLachlan Bros., Arnprior	Ayrshires.
McLeod, W. D., Kirkhill	Ayrshires.
McIntosh, Peter, Can Bridge.	Ayrshires.
McMaster, J. A., Montreal	Ayrshires.
McMillan, D. E., Laggan	Ayrshires.
McIntyre Bros., Sussex Corners, N.B.	Ayrshires.
McQuat, Jas. A., Brownberg, Que.	Ayrshires.
McViety, M. H., Ottawa	Ayrshires.
McGinnis, T. C., Iberville, Que	Ayrshires.
McDonald, Sir Wm., St Annes de Belleville	Ayrshires.
McDermid, P. T., Duntroon	Herefords.
McLean, W. J., Elmgrove	Herefords.
Newlands, Wm., Eburne, B.C.	Holstein-Friesians.
North, Geo., Marden	Holstein-Friesians.
Ness, Robt., Howick, Que.	Holstein-Friesians.
Ness, R. R., Howick, Que.	Holstein-Friesians.
Neely, Robt., Dorchester Sta.	Ayrshires.
Ontario Agricultural College, Guelph	Holstein-Friesians and Ayrshires.
O'Mahoney, D., Renton	Holstein-Friesians.
Ogilvie, W. Watson, Lachine Rapids, Que.	Ayrshires.
Owens, Hon. W., Montreal, Q.	Ayrshires.
Ouimet, Wilfred, Ste. Rose, Q.	Ayrshires.
Ouimet, Clovis, St. Francois de Sales, Que.	Ayrshires.
Ouimet, Adolphe, St. Francois de Sales, Que.	Ayrshires.
Ouimet, E., Ste, Rose (Laval), Que.	Ayrshires.
O'Neil Bros., Southgate	Herefords.
Popplewell, R., Elliott	Herefords.
Penhall, R. J., Nober	Herefords.
Pritchard Bros., Fergus	Herefords.
Pocket, Robt., Coaticook, Q.	Herefords.
Palmer, B. J., New Durham	Holstein-Friesians.
Pannabecker, E., Hespeler	Holstein-Friesians.
Paquette, Ferdinand, Montreal, Que.	Holstein-Friesians.
Patten, J. H., Paris	Holstein-Friesians.
Patterson, M., Almonte	Holstein-Friesians.
Patterson, Wm., Wawanessa, Man.	Holstein-Friesians.
Pettes, Jas. C., West Brome, Que.	Holstein-Friesians.
Pettit, F. C., Burgesville	Holstein-Friesians.
Pettit, F. E., Burgesville	Holstein-Friesians.
Pickering, John, Frelighsburg, Que.	Holstein-Friesians.

MEMBERS OF DOMINION CATTLE BREEDERS' ASSOCIATION.—Continued.

Name and Address.	Breed.
Post, H. H., Wellington	Holstein-Friesians.
Potter, A. B., Montgomery, Assa.	Holstein-Friesians.
Poole, Sam'l, Norwich	Holstein-Friesians.
Pound, Wm., Bayham	Holstein-Friesians.
Parker, W. D., Hatley, Que.	Ayrshires.
Paton, Hugh, Montreal, Que.	Ayrshires.
Patenude, P., St. Remi, Que.	Ayrshires.
Peter, J. M., West Brome, Q.	Ayrshires.
Phanent, Antonie, St. Antonie Vercheres, Que.	Ayrshires.
Pope, J. C., Regina, Assa.	Ayrshires.
Provincial Stock Farm, Charlottetown, P. E. I.	Ayrshires.
Proulse, Leopold, St Ours. Q.	Ayrshires.
Pursell, Daniel, Huntingdon, Que.	Ayrshires.
Perrier, Octave, Baprairie, Que.	Ayrshires.
Ritchie, David, Eramosa	Shorthorns.
Robertson, Archie, Eden Mills	Shorthorns.
Rudd, W. J, Eden Mills	Devons.
Robinson, T., Dunsford	Aberdeen-Angus.
Reesor, F. E. N., Locust Hill.	Holstein-Friesian.
Reinke, Fred., Southcote	Holstein-Friesian.
Rettie, Jas., Norwich	Holstein-Friesian.
Rice, Alfred, Curries	Holstein-Friesian.
Rice, Geo., Tillsonburg	Holstein-Friesian.
Richardson, J. A., South March	Holstein-Friesian.
Richardson, J. W., Caledonia.	Holstein-Friesian.
Richardson, Matt, Caledonia.	Holstein-Friesian.
Rife, David, Hespeler	Holstein-Friesian.
Ripley, H., Elgin	Holstein-Friesian.
Rivers, Walburn, Foldens	Holstein-Friesian.
Robertson, J. W., Vankleek Hill	Holstein-Friesian.
Rosebrugh, Jas., St. George.	Holstein-Friesian.
Rutherford, J. C., Kemptville.	Holstein-Friesian.
Redford, Robt., Ste. Annes de Bellevue, Que.	Ayrshires.
Reid & Co., (J. C .Smith), Hintonburg	Ayrshires.
Reil, J. B., St. Remi, Que.	Ayrshires.
Rivet, Chas., Joliet, Que.	Ayrshires.
Robertson, R, North Georgetown, Que.	Ayrshires.
Roberts, Jos., Russelton Flatts, Que.	Ayrshires.
Rannie, Wm., Menie	Ayrshires.
Rannie, C., Menie	Ayrshires.
Robinson, Tyson, Como, Que.	Ayrshires.
Ramage, Thos., Petite Cote,Q.	Ayrshires.
Reaman, Isaac, Concord	Herefords.
Reid, H. H., Epping	Herefords.
Reid, Thos. H., Holstein	Herefords.
Reed, H., Mimosa	Herefords.
Stewart, P., Everton	Grades.
Steen & Son, N .A., Meadowvale	Shorthorns.
Smith, A. W., Maple Lodge	Shorthorns.
Sibbald, E. K., Sutton West.	Shorthorns.
Simpson, Jas., Moffat	Shorthorns.
Stone Stock Co., F. W., Guelph	Herefords.
Stone, Jas., Saintfield	Herefords.
Scott, D. B., Fergus	Herefords.
Scott & Son, T., Sutton West.	Shorthorns.
Sharp, Jas., Rockside	Aberdeen-Angus.
Stewart, Wm., Lucasville	Aberdeen-Angus.
Sangster, Jas., Tatehurst, Q.	Holstein-Friesians.
Sangster, N., Ormstown, Que.	Holstein-Friesians.
Scatchard, Edwin, Wyton	Holstein-Friesians.
Scott, Robert, Epsom	Holstein-Friesians.
Schell, Walter S., Woodstock.	Holstein-Friesians.
Simmons, W. H., New Durham	Holstein-Friesians.
Stafford, W. R., Danville, Q.	Ayrshires.
Sutherland, A., Bond Head.	Herefords.
Smith, S. E., Dundas	Holstein-Friesians.
Smith, Wm. C., New Durham.	Holstein-Friesians.
Sonley, T J., Manilla	Holstein-Friesians.
Stauffer, F., Washington	Holstein-Friesians.
Stevenson, R. S., Ancaster	Holstein-Friesians.
Steves, J. M., Steveston, B.C.	Holstein-Friesians.
Stewart Freedrick, Elfreda	Holstein-Friesians.
Stewart, Hugh, Ormond	Holstein-Friesians.
Stewart, John, Delta	Holstein-Friesians.
Sturgis, D. E., Tillsonburg.	Holstein-Friesians.
Sumerfeldt, L., Unionville	Holstein-Friesians.
Suhring, Wm., Sebringville.	Holstein-Friesians.
Sweet, Ogden, North Sutton, Que.	Holstein-Friesians.
Sandilands John, Williamstown	Ayrshires.
Scott, John W., Austin, Minn.	Ayrshires.
Seminary of Queta, Quebec City	Ayrshires.
Simpson, Jas., South Augusta	Ayrshires.
Sims, John, Melbourne Ridge	Ayrshires.
Smith, W. M., Scotland	Ayrshires.
Steacy, R. G., Lyn or Brockville	Ayrshires.
Steel Bros., Glenbow, Man.	Ayrshires.
Stephen, W. F., Trout River, Que.	Ayrshires.
Stewart & Son, Wm., Menie.	Ayrshires.
Stewart, Jas. A., Menie	Ayrshires.
Smith, R W. Clanhavil	Ayrshires.
Senecal, L. C., St. Mari, Que.	Ayrshires.
Shirreff, Wm. & G. G., Clarence	Ayrshires.
Snetsinger, J. Wilson, Newington	Ayrshires.
Smith, Mrs. A. W. & Jno. Wilson, Simcoe	Ayrshires.
Scofield, David L., Blackville	Ayrshires.
Shannon Bros., Arnprior	Herefords.
Skippon, Thos., Hyde Park	Herefords.
Stone, Alf., Guelph	Herefords.
Stutt, Wm., Forest	Herefords.
Talbot & Son, D., Everton.	Shorthorns.
Templer, W., Jerseyville	Shorthorns.
Thompson, R. & W. J., Spiers	Shorthorns.
Tolton, Jas. & Geo., Walkerton	Shorthorns.
Thompson, P. A., Hillsburg.	Aberdeen-Angus.
Tannahill, John, White's Sun, Que	Holstein-Friesian.
Telfer, T. G., Ingersoll	Holstein-Friesian.
Truesdell, Jas. D., Spring Valley	Holstein-Friesian.
Taylor, F. W., Wellman's Corners	Ayrshires.
Thibdeau, D., North Watson Mills	Ayrshires.
Thompson, S. J. & Sons, St. James, Man.	Ayrshires.
Tipping, J. A., Clarenceville	Ayrshires.
Trann, W. H., Cedar Grove.	Ayrshires.
Trappiste Fathers, La Trappeoka, Que	Ayrshires.
Trudel, T., St. Prosper, Que.	Ayrshires.
Turemie, Delphis, St. Paul de Ermite Que.	Ayrshires.
Treverton, Thos. C., Belleville	Ayrshires.
Taylor, W. F., Westboro	Ayrshires.
Varey, E. B., Woodstock	Holstein-Friesians.

MEMBERS OF DOMINION CATTLE BREEDERS ASSOCIATION.—Concluded.

Name and Address.	Breed.
Wright, Herbert, Guelph	Herefords.
Warnica, A. H., Painswick	Herefords.
Walch, John, Mosboro	Shorthorns.
Webber, Menno, S. Waterloo	Shorthorns.
Wilson & Son, Jas., Fergus	Grades
White, R. E., Balderson	Shorthorns.
Whitelaw, A. & W., Guelph	Shorthorns.
Wright, Dan., Ponsonby	Shorthorns.
Wagler, C. Baden	Holstein-Friesians.
Walker, A. T., Beaconsfield	Holstein-Friesians.
Walker, R. W., Utica	Holstein-Friesians.
Walters, Geo. Wm., Thorndale	Holstein-Friesians.
Welsh, Henry, Weston	Holstein-Friesians.
Williams, Chas., Ostrander	Holstein-Friesians.
Willis, R. Jr., Glen Meyer	Holstein-Friesians.
Wilson, Howard, Russell	Holstein-Friesians.
Woodworth, M. E., Lacolle, Que.	Holstein-Friesians.
Wyckoff, I. G., Tyrrell	Holstein-Friesians.
Wylie, Jas. H., Almonte	Holstein-Friesians.
Wooddisee Bros., Rothsay	Ayrshires.
Watt, John, Allan's Corners	Ayrshires.
Wells & Son, A. C., Chilliwack, B. C.	Ayrshires.
Whittaker & Sons, H. T., North Williamsburg	Ayrshires.
Willoughby, Mrs. H. G., Saskatoon, Sask.	Ayrshires.
Wilson, J. Lockie, Alexandria	Ayrshires.
Wooley, Jos. Henry, Simcoe	Ayrshires.
Wood, Andrew, Vankleek Hill.	Ayrshires.
Wood, J. Walter, Short Hills, N. W. T.	Ayrshires.
Woodbury, Gordon, Manchester	Ayrshires.
Walker, Thos., Jr., Wellman's Corners	Ayrshires.
White, Wm., Bloomfield	Ayrshires.
Watson, Thos., Howick, Que.	Ayrshires.
Young, S., Guelph	Polled Angus and Shorthorns.
Young, Robt., Ospringe	Grades.
Young, R., Bowersville	Ayrshires.
Yates, Mahlin, Athens	Ayrshires.

Dominion Sheep Breeders' Association.

ANNUAL MEETING.

The annual meeting of the Dominion Sheep Breeders' Association was held in the Palmer House, Toronto, on February the 3rd, 1905, at 2.30 p.m. The President, Mr. R. H. Harding, occupied the chair.

On motion the minutes of the last annual meeting were taken as read.

PRESIDENT'S ADDRESS.

It is with pleasure that I welcome you here to the annual meeting of the Dominion Sheep Breeders' Association. You are engaged in a most honorable calling and one that requires considerable skill and perseverance. The year just closed has been one of the most successful in the history of sheep breeding in Canada. The markets for grade sheep and their products have generally been brisk, while the market for the best pure-bred animals, of almost all the mutton breeds, has steadily increased and I believe is going to still further increase; while the market for more inferior ones is on the decrease. It therefore behoves us to cater more and more to higher trade and still further raise the standard of pure bred sheep by using nothing but the best sires and selling the poorer specimens to the butcher. This is, I think, the shortest road to such success.

Although wool is a secondary consideration with breeders of the mutton breeds of sheep, yet we should not lose sight of the fact that with the fast increasing population of Canada, there will come a greatly increased demand for woollen goods. This we should aim, as far as lies in our power, to supply from our own country and if we do, we must keep more and if possible better sheep.

It is to be regretted that so many farmers have given up keeping sheep, especially in Ontario, a Province so well adapted for sheep-raising, and destined, I believe, to be the breeding ground of pure bred foundation flocks for the whole American continent. It might be advisable for us to give some attention towards the Argentine and Mexican trade, while not forgetting to encourage our home trade as much as possible. There is no good reason why there are not ten sheep kept in Canada for one that is now kept. Many will say there are too many dogs kept in this country to successfully keep sheep. This I would say is only too true. If we make ourselves heard as a unanimous body, I believe we can get legislation that will be helpful to the sheep breeding industry. To this end it might be well to appoint a committee to interview the Government and if necessary, to assist in formulating an Act that would in a measure remove the dog nuisance. This would be a great boon to sheep breeders.

I would also like to see breeders get more recognition in the prize list of our Fair Boards. While every credit is due to our importers for their enterprise in bringing into our country the best that they can buy, and while I would not like to see any of their present chances of winning struck

out of the prize lists, yet I would like to see more sections added to the lists for "stock bred by exhibitor." To encourage new exhibitors another clause might be added to the prize lists of our larger exhibitions—that no exhibitor shall have more than two entries in a section.

Mr. F. W. Hodson, Live Stock Commissioner, addressed the meeting and outlined the plan for establishing a National Sheep Record. He said that where sheep were registered in a Record recognized by the Dominion Department of Agriculture, whether in Great Britain or here, that animal should be re-recorded in the National Sheep Breeders' Association of Canada for 10 cents a head, or just enough to pay the expenses of printing and the clerical work. In the United States quite a number of records were conducted by charging 10 cents an entry. Mr. Hodson thought this would not be a great burden on the breeders and they would then be entitled to half rates over all Canadian railroads. Several of the members spoke favorably of the proposition as laid before the meeting, and the following resolution was unanimously passed:

"That the Dominion Sheep Breeders' Association approve of the plan of nationalizing the various records, and at once proceed to nationalize their Association and Records. That the office be transferred from Toronto to Ottawa. That A. W. Smith, Maple Lodge; Lieut.-Col. R. McEwen, Byron; John T. Gibson, Denfield; Lieut.-Col. McCrae, Guelph; Lieut.-Col. McGillivray, Toronto; Robert Miller, Stouffville, and Hon. John Dryden be a committee to meet the Live Stock Commissioner and at once complete arrangements."

On motion it was resolved: "That the thanks of this Association be tendered to the Hon. John Dryden for the great work he has done in the last 25 years in the interests of live stock in Canada."

"That this Association tender a vote of thanks to the St. Louis Exhibitors, who brought so much honor to Canada through their winnings."

"That notice of motion be given for the next annual meeting, that this Association ask the larger Fair Boards to allow nothing but Canadian or American bred animals to show in the sheep classes."

John Jackson thought this was a pretty difficult matter to get over, and no action was taken.

"That we recommend to the Winter Fair that they enforce a rule compelling all carcasses to be cut up for the judges in the carcass test in the Sheep Department at the Winter Fair."

"That the Canadian Government be and is hereby asked to take steps to regulate the further importation of sheep, and that animals for breeding purposes be admitted free of duty when pure-bred, registered in the authorized book of records of the Dominion of Canada, or of the country in which the breed originated, and when owned by a bona fide resident of the Dominion."

EXPERT JUDGES.

The following expert judges were then nominated:

Cotswolds: John Rawlings, Ravenswood; Wm. Thompson, Uxbridge; Val. Ficht, Oriel; Jas. Hume, Arkell; W. G. Laidlaw, Wilton Grove; R. P. Snell, Snelgrove; Wm. Linton, Aurora; S. J. Lyons, Norval; Jas. Russell, Richmond Hill; J. C. Snell, London; F. Bonnycastle, Campbellford; John Park, Burgessville; Hardy Shore, Glanworth; A. J. Watson, Castlederg; Prof. G. E. Day, Guelph; John V. Snell, Snelgrove.

Judges Nominated for Toronto: Robert Miller, Stouffville; James Hume, Arkell.

Judges Nominated for London: Val. Ficht, Oriel; John V. Snell, Snelgrove.

Judges Nominated for Ottawa: Val. Ficht, Oriel; A. Thompson, Uxbridge.

Judges Nominated for Chicago: Prof. Curtiss, Ames, Ia.; Prof. Day, Guelph; R. P. Snell, Snelgrove.

Leicesters: R. J. Garbutt, Belleville; Jas. Fennell, Bradford: H. B. Jeffs, Bond Head; A. E. Archer, Warwick; Geo. Whitlaw, Guelph; Hardy Shore, Glanworth; Abraham Easton, Appleby; E. Wood, Appleby; Wm. Parkinson, Eramosa; E. Parkinson, Eramosa; John Orr, Galt; Wm. McIntosh, Burgoyne; R. Eastwood, Mimico; John Kelly, Shakespeare; And. Thompson, Fergus; J. K. Campbell, Palmerston; J. C. Snell, London; G. B. Armstrong, Teeswater; John Gibson, Denfield; C. E. Wood, Freeman; Jos. Gaunt, St. Helen's; J. M. Gardhouse, Weston; And. Whitlaw, Guelph; Wm. Whitlaw, Guelph; R. C. Martin, Marysville; A. W. Smith, Maple Lodge; H. G. Arnold, Maidstone; Prof. Craig, Ames, Ia.; John Marshall, Cass City, Mich.; J. W. Murphy, Cass City, Mich.; Prof. Curtiss, Ames, Ia.; Geo. Penhale, Exeter; Jas. Snell, Clinton; Prof. Day, Guelph; M. Kennedy, Northwood; D. Lillico, Ayr; Jas. Douglas, Caledonia; Frank Shore, White Oak; John Gardhouse, Highfield; Wm. Beattie, Wilton Grove.

Judges Nominated for Toronto: Robert Garbutt, Belleville; (Reserve) Prof. G. E. Day, Guelph.

Judges Nominated for London: G. Whitelaw, Guelph: (Reserve), Frank Shore, White Oak.

Judges Nominated for Ottawa: Prof. Day, Guelph; Wm. Whitelaw, Guelph.

Dorsets: John Kelly, Shakespeare; Robert Miller, Stouffville; J. M. Gardhouse, Weston; John Campbell, Fairview; J. G. Hanmer, Mt. Vernon; Prof. Curtiss, Ames, Ia.; Thos. W. Hector, Springfield-on-Credit; G. P. Everett, Mt. Vernon; John A. McGillivray, Uxbridge; H. N. Gibson, Delaware; E. O. Denton, Somerset, N. Y.; G. McKerrow, Sussex, Wis.; John Jackson, Abingdon; Fred. Silversides, Uxbridge; R. H. Harding, Thorndale.

Judges Nominated for Toronto: Arthur Danks, Allamuchy, N. Y.; (Reserve), J. C. Duncan, Lewiston, N.Y.

Judges Nominated for London: J. G. Hanmer, Mt. Vernon; (Reserve), J. M. Gardhouse, Weston.

Southdowns: John Jackson, Abingdon; W. H. Beattie, Wilton Grove; W. H. Gibson, Beaconsfield; N. H. Gibson, Delaware; H. B. Jeffs, Bond Head; Geo. Telfer, Paris; J. G. Hanmer, Brantford; J. C. Duncan, Lewiston, N. Y.; Col. R. McEwen, Byron.

Oxfords: Prof. G. E. Day, Guelph; John Harcourt, St. Anns; Smith Evans, Guelph; Jas. Tolton, Walkerton; R. J. Hine, Dutton; Henry Arkell, Arkell; Wm. Dickson, Mildmay; Peter Arkell, Teeswater; J. H. Jull, Mt. Vernon; W. J. Arkell, Teeswater; John E. Cousins, Harriston; Arch. McKenzie, Corwhin; R. E. Birdsall, Birdsall; J. V. Cooper, Picton; Wm. Newman, Cherry Valley; Wm. Arkell, Teeswater; L. Parkinson, Eramosa; S. C. Ketchen, Bloomsburg; W. Lee, Simcoe; J. A. Richardson, South March.

Judges Nominated for Toronto: Jas. L. Tolton, Walkerton; L. Parkinson, Eramosa.

Judges Nominated for London: W. J. Arkell, Teeswater; Jas. Tolton, Walkerton.

Judges Nominated for Ottawa: Henry Arkell, Arkell.

Provincial Winter Fair: L. Parkinson, Formosa.

HAMPSHIRES AND SUFFOLKS: R. Gibson, Delaware; Henry Arkell, Arkell; W. H. Beattie, Wilton Grove; Jas. Bowman, Guelph; John Kelly, Shakespeare; Geo. L. Telfer, Paris; G. E. Day, Guelph; H. N. Gibson, Delaware.

Judges Nominated for Toronto: W. H. Beattie, Wilton Grove.

Judges Nominated for London: W. H. Beattie, Wilton Grove; (Reserve), H. N. Gibson, Delaware.

LINCOLNS: J. T. Gibson, Denfield; J. H. Patrick, Ilderton; Graham Walker, Ilderton; Robert Robson, Ilderton; Robert Stevens, Lambeth; John Geary, London; J. C. Hughs, Ilderton; Wm. Beattie, Wilton Grove.

SHROPSHIRES: G. P. Everett, Mt. Vernon; J. Consworth, Paris; W. H. Beattie, Wilton Grove; R. Miller, Stouffville; J. Hanmer, Burford; J. Campbell, Woodville; D. G. Hanmer, Burford; M. Levering, Lafayette, Ind.; A. Elliott, Galt; J. Dickin, Milton West; J. S. Thompson, Cass City, Ind.; Geo. Allen, Allerton, Ill.; W. G. Pettit, Freeman; D. J. Campbell, Woodville; Chas. Calder, Brooklin; H. N. Gibson, Delaware; Geo. Hindmarsh, Ailsa Craig; C. W. Gurney, Paris; W. E. Wright, Glanworth; J. Miller, Brougham; H. Hanmer, Burford; Prof. Curtiss, Ames, Ia.; J. C. Duncan, Lewiston, N. Y.; G. McKerrow, Sussex, Wis.; Prof. Day, Guelph; Arthur Barnett, Brooklin; Geo. L. Telfer, Paris; A. W. Smith, Maple Lodge; J. Shields, Caistorville; Geo. Crawford, Minesing.

Judges Nominated for Toronto: J. C. Duncan, Lewiston, N. Y.; (Reserve), W. H. Beattie, Wilton Grove.

Judges Nominated for London: W. H. Beattie, Wilton Grove.

Judges Nominated for Ottawa: D. G. Hanmer, Mt. Vernon.

Provincial Winter Fair: J. C. Duncan, Lewiston, N. Y.; (Reserve), Robert Miller, Stouffville.

FINANCIAL STATEMENT FOR THE YEAR ENDING DECEMBER 31ST, 1904.

RECEIPTS.		EXPENDITURE.	
Members' fees	$ 70 00	Balance due Treasurer, as per last report	$ 570 69
Legislative Grant	2,500 00	Cash paid for prizes	1,096 00
Dominion Government Grant	231 15	Officers' salaries	350 00
		Directors' fees and expenses	104 48
		Postage and stationery	72 68
		Printing	15 50
		Advertising	17 16
		Cost of reporting	5 00
		Grant re stock cars	25 00
		Telegraph, telephone, Express	15 03
		Typewriting and office exp's	469 08
		Auditor	5 00
		Miscellaneous	4 40
		Cash on hand	51 13
	$2,801 15		$2,801 15

Examined and found correct
this 2nd day of February, 1905.
(Signed) J. M. DUFF, Auditor.

R. H. HARDING, President.
A. P. WESTERVELT, Treasurer.

OFFICERS FOR 1905.

President ..... J. M. Gardhouse, Weston.
Vice-President ..... John Campbell, Woodville.
Secretary-Treasurer ..... A. P. Westervelt, Toronto.
Directors:
Cotswolds ..... D. McCrae, Guelph.
Leicesters ..... Andrew Whitlaw, Guelph.
Hampshires and Suffolks ..... Geo. L. Telfer, Paris.
Dorsets ..... Lieut.-Col. J. A. McGillivray, Bedford Park.
Southdowns ..... John Jackson, Abingdon.
Oxfords ..... Jas. Tolton, Walkerton.
Lincolns ..... J. T. Gibson, Denfield.
Shropshires ..... J. G. Hanmer, Mt. Vernon.
Ont. Agricultural College ..... Prof. G. E. Day. Guelph.
Dominion Live Stock Commissioner .. F. W. Hodson, Ottawa.
General Director ..... R. H. Harding, Thorndale.
Auditor ..... J. M. Duff, Guelph.
Delegates to Fair Boards:
Toronto Industrial ..... John Campbell, Woodville.
John Jackson, Abingdon.
Ottawa ..... Norman, Wilson, M.P., Cumberland.
London ..... A. W. Smith, Maple Lodge.
R. H. Harding, Thorndale.
Provincial Winter Fair ..... A. W. Smith, Maple Lodge.
John Jackson, Abingdon.
Col. R. McEwen, Byron.
Eastern Ontario Live Stock and Poultry Show ..... J. M. Gardhouse, Weston.
J. G. Clark, Ottawa.
J. A. Richardson, South March.

MEMBERS DOMINION SHEEP BREEDERS' ASSOCIATION, 1904-05.

Name and Address.	Breed.
Arkell, Henry, Arkell, Ont.	Oxford Downs.
Armstrong, G. B., Teeswater	Leicesters.
Baker, G. W. A., Trafalgar	
Barnes, G. W., Guelph	
Brethour, J. E., Burford	
Bright, John, Myrtle	
Bonnycastle & Son, F., Campbellford	Cotswolds.
Bowman, Jas., Guelph	Suffolks, Dorsets.
Brown, Thos., Allanburg	
Brown, F. W., Portage la Prairie, Man.	Cotswolds.
Campbell, John, Woodville.	Shropshires.
Carruthers, Wm., Cashel	
Calder, Chas., Brooklin	
Christie, Peter, Manchester.	Shropshires.
Cousins & Son, John, Harriston	Oxfords.
Cottrelle, G. R., Milton	Leicesters.
Conworth, J., Paris	Shropshires.
Cook, James, Myrtle	
Currelly & Son, T., Fullarton	Leicesters.
Dawson, Adam, Cannington.	
Donaldson, Wm., South Zorra	Shropshires.
Douglas, James, Caledonia.	Leicesters.
Douglas, R. J., Galt	Southdowns.
Drummond, Hon. G. A., Beaconsfield, Que.	Southdowns.
Duke, J O., Olinda	
Edwards, W. C., Rockland.	Shropshires.
Evans, Smith, Gourock	Oxfords.
Evans, David, Somenos, B.C.	Southdowns.
Foster, Lorne, Myrtle	
Gardhouse, J. M., Weston	Leicesters.
Garbutt, R. J., Belleville	Leicesters.
Gibson, J. T., Denfield	Lincolns.
Gibson, Richard, Delaware.	Shropshires.
Harding, R .H., Thorndale.	Dorset Horns.
Hanmer, D. G. & Son, Mt. Vernon	Shropshires.
Hastings Bros., Crosshill	Leicesters.
Hanmer, J. G., Brantford	Shropshires.
Hindmarsh, Geo., Ailsa Craig	Shropshires.
Hine, R. J., Dutton	Oxfords.
Hood, G. B., Guelph	Leicesters.
Hodson, F. W., Ottawa	
Hume, James, Arkell	Cotswolds.
Hunter, John, Wyoming	Dorsets.
Jackson, John, Abingdon	Southdowns.
Jeffs & Son, E., Bond Head.	Southdowns and Leicesters.
Johnston, James, Trafalgar.	Dorset Horns.

MEMBERS DOMINION CATTLE BREEDERS' ASSOCIATION—Continued.

Name and Address.	Breed.
Johnston, Arthur, Greenwood.	
Jull, J. H., Burford	Oxfords.
Kelly, John, Shakespeare	Hampshires and Leicesters.
Leo & Sons, J. W., Simcoe	Oxfords.
Lewin, J. C., Bow Park Farm, Brantford	
Lloyd-Jones Bros., Burford	Shropshires.
Luxton, A. G. H., Milton	Dorset Horns.
Maynard, J. T., Chilliwack, B. C.	Dorset Horns.
Martin, Wm., Binbrook	Southdowns.
Maw, Chas. F., Omagh	Leicesters.
Miller, Robert, Stouffville	Shropshires.
Monkman, W. D., Bond Head	Shropshires.
McCrae, D., Guelph	Southdowns and Cotswolds.
McEwen, Robert, Byron	Southdowns.
McNelly, Hugh, Arkell	Cotswolds.
McGillivray, J. A., Bedford Park	Dorsets.
McRobie, F., Iroquois	Leicesters.
Orr, John, Galt	Leicesters.
Parkinson, L., Eramosa	Leicesters.
Patrick, J. H., Ilderton	Lincolns.
Rawlings, John, Ravenswood.	Cotswolds.
Rawlings & Bailey, Forest	Cotswolds.
Rawlings, John, Forest	Cotswolds.
Richardson, J. A., South March	Oxfords.
Richardson, J., Mayne, B. C.	
Ross, J. C., Jarvis	Cotswolds.
Robertson, Jas., Milton	
Rodger, David, Ayr	
Rudell, Abram, Hespeler	Shropshires.
Snell, E. P., Snelgrove	Cotswolds.
Stewart, A. M., Dalmeny	Southdowns.
Smith, John, Beachville	Leicesters.
Smith, A. W., Maple Lodge.	Leicesters.
Smith, W. M., Fairfield Plains	Merinos.
Smith, Wm., Columbus	Cotswolds.
Scott, Dr. J. L., London Shore	
Taylor, Chas., Fonthill	
Telfer Bros., Paris	Southdowns.
Tolton, Jas., Walkerton	Oxfords.
Tolton, Jas. L., Walkerton	Oxfords.
Thompson, D., Uxbridge	Cotswolds.
Underhill, Jas., Claremont	
Whitelaw, A. & W., Guelph.	Leicesters.
Wright, John, Mohawk	Leicesters.
Wright, John, Chesley	Leicesters.
Wright, W. E., Glanworth	Shropshires.
Wood, C. P. E., Freeman	Leicesters.

Dominion Swine Breeders' Association

ANNUAL MEETING.

The annual meeting of the Dominion Swine Breeders' Association was held at the Palmer House, Toronto, on February 3rd, 1905, at 9.30 a. m. President Thos. Teasdale, Concord, occupied the chair.

On motion the minutes of the last annual meeting were taken as read.

NATIONAL RECORDS.

The President called upon the Live Stock Commissioner to address the meeting.

Mr. F. W. Hodson, Dominion Live Stock Commissioner, spoke at length on the subject of having National Records. He said that if the Records were not made national in character, each Province would establish a record of its own, and this would be detrimental to the live stock interests of the country. The railway authorities threatened to cancel the half rates on pure-bred stock unless but one form of registration certificate was used. At a recent meeting of the Canadian Freight Association, a ruling was made, "That all record certificates accepted by the Railroads must be of uniform size and appearance and bear the seal of some central body recognized as reliable by the Dominion Department of Agriculture." Mr. Hodson also pointed out that the nationalization of Canadian Records would reduce the expenses of the breeders very materially. They would save in postage and express alone $1,500 per year. In clerical work at least $2,000 could be saved, making a total saving by nationalization of $3,000 per year, which in ten years would amount to $30,000 saved to the farmers and breeders of Canada.

J. G. Clark: Would the breeders require to pay postage when sending in their certificates, or would forms and letters sent in go free?

F. W. Hodson: No postage would be required either going or coming to Ottawa.

D. C. Flatt: What benefit is it going to be to us in shipping our stock across the lines?

F. W. Hodson: We have had a good deal of correspondence in connection with that matter, and I have assurances that pretty good things are in store for us in that respect. I cannot give this correspondence as official yet, but I am perfectly satisfied the way things are working out.

The following resolution was then submitted, and carried unanimously:

Moved by J. E. Brethour, seconded by J. C. Smith, "That the Dominion Swine Breeders' Association at once proceed to nationalize their Association and Records. That the office be transferred from Toronto to Ottawa. That J. W. Nimmo be Registrar; that Hon. John Dryden, Joseph Featherston, A. P. Westervelt, D. C. Flatt, J. E. Brethour, Robert Vance, and J. C. Smith, be a committee to meet with the Live Stock Commissioner and at once complete arrangements." Carried.

Hon. John Dryden was then called upon for a few remarks, and he said they had just completed the work he was especially interested in. He

thought it would have been a great mistake to separate into various branches and have a score or more of registration associations, which would make it so confusing and difficult to do business. They had had enough difficulty between this country and the United States, and it was greatly to the advantage of the live stock interests of this country that they were in a position to come together as one body, and he felt assured that now it was accomplished there was not a man in the country but would say it was a great advantage to all. He thought one of the things most important was the cultivation of what was called interprovincial trade, and National Records would greatly stimulate this. If each Province established records of their own they would be more inclined to trade within themselves which would not be to the best live stock interests of the country.

Moved by D. C. Flatt, seconded by Geo. Green, "That the Dominion Swine Breeders' Association grant the sum of $800 to Toronto and London Exhibitions; $500 to be given to Toronto and $300 to London to be divided over the different breeds as they may appear, and that the said sum of $800 be taken from the grant of $2,500 given by the Ontario Government to the Swine Breeders' Association."

Hon. John Dryden: Would you like me to give you a little advice? It means you are asking the Legislature to indirectly vote money to support these exhibitions, London and Toronto, but no Legislature can stop there, because while you may be specially interested in Toronto, yet some other person would want money for Ottawa. If you pass that resolution you are giving the impression to the Legislature that you do not need the $2,500 when you can afford to give a good deal of it away. Then I would like to suggest another thing. That grant was never given for that purpose. The grant was increased to the amount it is to-day for the special purpose of carrying on the educational work in connection with the Winter Fair. I do not want you to take, what seems to me, a backward move.

Mr. D. C. Flatt: I would not give this money with the impression that it is handled and managed for the benefit of the Swine Breeders' Association. If it is for the Winter Fair, let it be put there.

Hon. John Dryden: It was always so stated and the primary reason was to enable you to carry on the work of the Winter Fair and not for the other reason at all.

J. P. Downey, M.P.P., supported Hon. John Dryden's contention, that the money should be devoted entirely for the purpose of carrying on the educational features at the Provincial Winter Fair.

A. W. Smith, said the Winter Fair was carried on by contributions from all the different Live Stock Associations and it would be a great injury to the Fair to take away any of this grant intended to carry on the work.

Mr. Flatt then withdrew this motion.

D. C. Flatt then moved, seconded by Geo. Green, "That the Dominion Swine Breeders' Association grant the sum of $300 to the Toronto Exhibition."

A lengthy discussion then took place on this motion. It was pointed out that it would be taking the money out of the $2,500 Government grant, because, after printing the Herd Book and paying postage, etc., there was only some $9.45 left out of the money received from the registration fees.

The motion was put to the meeting and on a second vote being taken was declared lost. Mr. Hodson, Live Stock Commissioner, promised

that he would guarantee to the Association the sum of $300, to be given as prizes in the Swine Department for 1905.

Moved by Geo. Green, seconded by Robert Clark, and resolved: "That the Chester Whites should have a distinct class at the National Exhibition, Toronto. That our representatives bring this before the Toronto Fair Board, and that the Secretary be requested to send them a copy of this resolution."

Moved by F. W. Hodson, seconded by D. C. Flatt, "That the breeders of the various breeds proceed to select the expert judges and report at once to the meeting." Carried.

EXPERT JUDGES.

Nominated by the Dominion Swine Breeders' Association for 1905.

Berkshires: Wm. Wilson, Snelgrove; J. C. Smith, Hintonburg; X. Plaunt, North Cote; Samuel Dolson, Alloa; Hugh G. Clark, Norval; P. W. Boynton, Dollar; Alex. Smith, Maple Lodge; Wm. Jones, Zenda; W. G. Cavan, East Toronto; Jas. McEwen, Kertch; John Boyes, Jr., Churchill; Henry Jones, Zenda; H. J. Davis, Woodstock; J. C. Snell, London; Thos. Teasdale, Concord; Geo. Green, Fairview; Robert Vance, Ida; T. A. Cox, Brantford; Jas. Quirie, Delaware; Jos. Featherston, Streetsville; R. P. Snell, Snelgrove; C. R. Decker, Chesterfield; Chas. Youngs, Brooksdale; D. DeCourcey, Bornholm; R. H. Harding, Thorndale; Jos. Barnett, Rockland; E. E. Martin, Canning; H. B. Jeffs, Bond Head; Wm. Linton, Aurora; E. Brien, Ridgetown; G. B. Hood, Guelph; J. E. Brethour, Burford; Alex. Hart, Hampstead; W. A. Shields, Milton; D. J. Gibson, Bowmanville; S. J. Lyons, Norval; A. Johnston, Greenwood; C. C. McAvoy, Atha; J. L. Clark, Norval; Aiken Dolson, Alloa; John Watkins, Norval; D. C. Flatt, Millgrove; W. H. Durham, Toronto; Wm. Hartley, Alloa; John Bright, Myrtle; Frank Teasdale, Concord.

Judges Recommended for Toronto: Robert Vance, Ida; H. Clark, Alloa; H. B. Jeffs, Bond Head; E. E. Martin, Canning; R. P. Snell, Snelgrove; Geo. Green, Fairview.

Judges Recommended for London: Samuel Dolson, Alloa; R. Vance, Ida; Wm. Wilson, Snelgrove; H. Clark, Alloa; H. B. Jeffs, Bond Head; R. P. Snell, Snelgrove; Thos. Teasdale, Concord; John Kelly, Shakespeare.

Yorkshires and Tamworths: David Barr, Jr., Renfrew; E. A. Kipp, Chilliwack, B. C.; Jas. Bray, Longburn, Man.; Lou Rogers, Weston; Geo. D. Betzner, Copetown; R. J. Kerr, Mimosa; W. R. Bowman, Mount Forest; Wm. Jones, Zenda; R. J. Garbutt, Belleville; R. H. Harding, Thorndale; N. M. Blain, St. George; J. H. Simonton, Chatham; G. North, Marden; A. Elliott, Galt; L. F. Master, Haysville; A. C. Hallman, New Dundee; D. G. Hanmer, Burford; John Nichol, Hubrey; J. E. Brethour, Burford; A. Laurie, Wolverton; Wm. Davies, Toronto; Richard Gibson, Delaware; Henry Dedels, Kossuth; G. B. Hood, Guelph; F. Shore, White Oak; Jos. Featherston, Streetsville; H. E. Sharp, Ida; A. F. McGill, Hillsburg; J. M. Hurley, Belleville; Geo. Gier, Grand Valley; Jas. Stephen, Trout River, Que.; R. McCulloch, Harriston; Jos. Fletcher, Oxford Mills; Robt. Nichol, Brussels; A. F. Foreman, Collingwood; Jas. Leach, Toronto; Wm. Howe, North Bruce; Prof. G. E. Day, Guelph; H. J. Davis, Woodstock; D. C. Flatt, Millgrove; W. R. McDonald, Ridgetown; W. Elliott, Galt; R. G. Martin, Marysville; J. E. Cousins, Harriston; Geo. Green, Fairview; J. W. Callbeck, Augustine Cove, P. E. I.; J. G. Clark, Ottawa; J. C. Smith, Hinton-

burg; D. Drummond, Myrtle; H. B. Jeffs, Bond Head; And. Graham, Pomeroy, Man.; A. Carey, Millgrove; Jas. Yule, East Selkirk, Man.; A. W. Ross, Bromley; J. J. Pearson, Cooksville; R. F. Duck, Port Credit; Duncan Anderson, Rugby; Thos. Hurley, Belleville; J. H. Grisdale, Ottawa; A. A. Colwill, Newcastle; M. Cumming, Truro, N. S.; R. O. Morrow, Hilton; Geo. Douglas, Mitchell; Jas. Douglas, Mitchell; A. P. Ketchem, Winnipeg, Man.

Judges Recommended for Toronto: J. G. Clark, Ottawa; J. C. Nichol, Hubrey.

Judges Recommended for London: Thos. Teasdale, Concord; A. C. Hallman, Breslau; J. C. Nichol, Hubrey; G. B. Hood, Guelph; Peter Hord, Parkhill.

Judges Recommended for Ottawa: D. C. Flatt, Millgrove.

Bacon Judges Recommended for Toronto: J. G. Clark, Ottawa; Thos. Teasdale, Concord; J. C. Nichol, Hubrey.

Essex: R. P. Snell, Snelgrove; Major G. B. Hood, Guelph; R. J. Garbutt, Belleville; R. H. Harding, Thorndale; Wm. Jones, Zenda; Jas. Main, Milton.

Duroc-Jerseys: D. C. Flatt, Millgrove; D. DeCourcey, Bornholm; G. B. Hood, Guelph; Geo. Green, Fairview; Wm. Jones, Zenda; J. E. Brethour, Burford; R. H. Harding, Thorndale; W. M. Smith, Scotland; Geo. Bennett, Charing Cross; Jos. Featherston, Streetsville; H. George, Crampton; W. Wilson, Snelgrove; Prof. G. E. Day, Guelph; Jos. McGarvin, Chatham; W. N. Tape, Bentpath.

Poland Chinas: Thos. Teasdale, Concord; Jos. Featherston, Streetsville; D. DeCourcey, Bornholm; Geo. Green, Fairview; Wm. Jones, Zenda; W. M. Smith, Scotland; Henry Jones, Zenda; R. H. Harding, Thorndale; C. W. Yapp, Brantford; R. Willis, Glen Meyer; W. N. Tape, Bentpath; Prof. G. E. Day, Guelph; Lawrence Tape, Ridgetown.

Chester Whites: E. D. George, Putnam; R. E. Birdsall, Birdsall; Albert Barachy, Bloomington; Wm. Jones, Mt. Elgin; J. C. Snell, London; Geo. Green, Fairview; D. DeCourcey, Bornholm; R. H. Harding, Thorndale; G. B. Hood, Guelph; Gideon Snyder, Jarvis; Jos. Featherston, Streetsville; H. George, Crampton; G. Bennett, Charing Cross; J. E. Brethour, Burford; J. C. Nichol, Hubrey; Prof. G. E. Day, Guelph; W. E. Wright, Glanworth; Robert Clark, Ottawa; D. C. Flatt, Millgrove; Geo. Douglas, Mitchell; J. C. Smith, Hintonburg.

Judges Recommended for Toronto: G. B. Hood, Guelph; E. D. George, Putnam.

Judges Recommended for London: D. C. Flatt, Millgrove; Jos. Featherston, Streetsville.

Judges Recommended for Ottawa: Jos. Featherston, Streetsville; G. B. Hood, Guelph; Sharpe Butterfield, Windsor.

Provincial Winter Fair: G. B. Hood, Guelph.

FINANCIAL STATEMENT OF THE DOMINION SWINE BREEDERS' ASSOCIATION.

For the Year Ending December 31st, 1904.

Receipts.		Expenditures.	
Cash on hand from previous year, as per last report ...	$2,214 82	Grant to Brandon Fair	$ 40 00
Members' fees	694 00	Grants to Toronto Exhibition, 1903-'04	600 00
Legislative Grant	2,500 00	Cash paid for prizes	1,480 00
Registration Fees	1,282 45	Secretary's salary	350 00
Sale of Records	15 25	Directors' fees and expenses...	165 74
		Postage and stationery	183 31
		Printing	1,128 65
		Advertising	21 16
		Cost of Reporting	5 00
		Telegraph, telephone, express.	18 61
		Typewriting & office expenses	470 23
		Grant re stock cars	25 00
		Auditors	20 00
		J. W. Nimmo, grant for services	100 00
		Miscellaneous items	4 58
		Cash on hand	2,094 24
	$6,706 52		$6,706 52

Audited and found correct.
J. M. Duff, Auditor.

Thomas Teasdale, President.
A. P. Westervelt, Treasurer.

OFFICERS FOR 1905.

Hon. President .... F. W. Hodson, Dominion Live Stock Commissioner, Ottawa.
President .... Thos. Teasdale, Concord.
Vice-President .... R. H. Harding, Thorndale.
Secretary-Treasurer ....A. P. Westervelt, Toronto.
Registrar .... J. W. Nimmo, Ottawa.
Directors:
Berkshires .... George Green, Fairview.
Yorkshires .... J. E. Brethour, Burford.
Chester Whites .... D. DeCourcey, Bornholm.
Poland Chinas .... Wm. Jones, Zenda.
Duroc-Jerseys .... W. M. Smith, Scotland.
Tamworths .... J. C. Smith, Hintonburg.
Essex .... Jos. Featherston, Streetsville.
General Director .... G. B. Hood, Guelph.
Ont. Agricultural College .... Prof. G. E. Day, Guelph.
Dom. Live Stock Commissioner ..... F. W. Hodson, Ottawa.
Auditor .... J. M. Duff, Guelph.
Representatives to Fair Boards:
Toronto Industrial .... D. C. Flatt, Millgrove.
Samuel Dolson, Alloa.
Ottawa .... Robert Clark, Ottawa.
J. A. Richardson, South March.
London .... Geo. Green, Fairview.
Daniel DeCourcey, Bornholm.
Peterboro' .... Robert Vance, Ida.
Guelph .... G. B. Hood, Guelph.
Jas. Anderson, Guelph.
Belleville .... J. M. Hurley, Belleville.
Kingston .... R. J. Garbutt, Belleville.
Thos. Hurley, Belleville.
Provincial Winter Fair .... Prof. G. E. Day, Guelph.
G. B. Hood, Guelph.
Wm. Jones, Mt. Elgin.
Eastern Ontario Live Stock and Poultry Show .... Thos. Teasdale, Concord.
David Barr, Jr., Renfrew.
Robert Clark, Ottawa.

MEMBERS OF THE SWINE BREEDERS' ASSOCIATION, 1904-05.

Name and Address.	Breed.
Avery, Alf., Medicine Hat, Assa.	Yorkshires.
Agnew, Thos., Tottenham	Yorkshires.
Allin, Fred. T., Hampton	Tamworths.
Allison, David, Roland, Man.	Berkshires.
Aitchison, Wm., Lambton Mills	Yorkshires.
Banting, T. E. M., Banting, Man.	Tamworths.
Baldwin, W. E., Manitou, Man.	Tamworths.
Bray, Jas., Longburn, Man.	Yorkshires.
Barchfeld, L. D., Grimsby	Tamworths.
Blanchard, C. N., Appleby.	Yorkshires.
Bartlett & Sons, D., Smithville	Yorkshires.
Baldock, Wm., Mount Charles	Yorkshires.
Bray, Geo., Ralphton, Man.	Yorkshires.
Bryan, C. R. B., Durham, N. S.	Yorkshires.
Baker & Sons, J. E., Barronsfield, N. S.	Duroo Jerseys.
Bradley, L. A., Portage la Prairie, Man.	Tamworths.
Brandow, J. L., Walsingham Centre	Yorkshires.
Barton & Son, Welsford, N.B.	Yorkshires.
Balsdon, John I., Markham	Berkshires and Yorkshires.
Barber, H. M., Gatineau Point, Que.	Yorkshires.
Brethour, J. E., Burford	Yorkshires.
Bennett & Son, Geo. A., Carlisle	Berkshires.
Beggs, John, Arcola, Assa.	Berkshires.
Bennett, John, Orton	Yorkshires.
Bernath, Jas., Nashville	Yorkshires.
Beingessner, F. X., Mildmay.	Yorkshires.
Benson, S., Neepawa, Man.	Yorkshires.
Bennett, G., Charing Cross.	Chester Whites.
Benson, Thos., Neepawa, Man.	Yorkshires.
Beaton, Duncan, Omemee, N. Dakota	Yorkshires.
Birdsall & Son, F., Birdsall.	Chester Whites.
Brien & Son, E., Ridgetown.	Berkshires.
Birch, Rich., Anderson	Yorkshires.
Bingham, W. B., Moosejaw, Assa.	Yorkshires.
Billingsley, Geo., Raymond.	Chester Whites.
Brooksbank, A., Aurora	Berkshires.
Bowman, Til. E., Berlin	Chester Whites.
Bonnycastle & Son, F., Campbellford	Yorkshires.
Brown, F. W., Portage La Prairie, Man	Berkshires.
Boyes, John, Churchill	Berkshires.
Bloomer, Jas., Basswood, Man.	Yorkshires.
Brodie, Peter, Mill Cove, P. E. I.	Berkshires.
Boynton, P. W. & Son, Dollar	Berkshires.
Boyce, B. F., Kelowna, B.C.	Yorkshires.
Brown Bros., Ellisboro, Assa.	Berkshires.
Burnell, Ed., Strathclair, Man.	Berkshires.
Bulstrode, C. G., South Qu'Appelle, Assa	Berkshires and P. Chinas.
Buchanan, Alex., Fergus	Yorkshires.
Burkholder, Noah, Cherrywood.	Berkshires.
Cavan, G., Toronto	Berkshires.
Clark, J. W., Cainsville	Yorkshires.
Carruthers, C. & J., Cobourg.	Berkshires.
Campbell, D., Norwood	Yorkshires.
Came, F. E., Lachine, P.Q.	Yorkshires.
Campbell, Mac., Samson	Berkshires.
Crawford, Thos., Camlachie.	Yorkshires.
Calder, Chas., Brooklin	Yorkshires.
Callbeck, J. W., Augustine Cove, P. E. I.	Yorkshires.
Clark, J. G., Ottawa	Yorkshires.
Cameron, Alex., Oshawa	Yorkshires.
Chapman, F. M., Audley	Yorkshires.
Clark, P., Ottawa	Yorkshires.
Clark, W. W., Napinka, Man.	Yorkshires.
Campbell, Geo., Killarney	Yorkshires.
Clark, H. G., Norval	Yorkshires.
Clark, Robt., Ottawa	Chester Whites.
Clark, J. L., Norval	Yorkshires.
Clemons, G. W., St. George.	Yorkshires.
Cerswell, J. A., Bond Head.	Yorkshires.
Christian, Hy., Shelburne	Yorkshires.
Christie, Peter, Manchester.	Yorkshires.
Cowieson, J. B., Queensville.	Berkshires.
Coulter, John, Talbotville	Yorkshires.
Cole, T. J., Bowmanville	Yorkshires.
Collins, P. O., Bowesville	Yorkshires.
Cowan, J. S., Newry	Berkshires.
Colwill Bros., Newcastle	Tamworths.
Cousins & Son, J., Harriston	Yorkshires.
Coes, Major F., Moffatt, Assa.	Berkshires.
Cochran, A., Almonte	Berkshires.
Connolly, Jas., Macton	Yorkshires.
Connolly, P. J., Middleton P. E. I.	Yorkshires.
Crowell, W. N., Napinka, Man.	Berkshires.
Cole & Son, R. H., Wooler.	Yorkshires.
Cook, John W., Marmora.	Yorkshires.
Coates, Wm., Snelgrove	Berkshires.
Cottrelle, G. R., Milton	Berkshires.
Curtis, C. W., Warden, Que.	Berkshires.
Cullis, W. H., Powle's Cor.	Yorkshires.
Cunningham, John, Norval.	Berkshires.
Curtis, A. E., Stanstead, Q.	Chester Whites.
Davis, H. J., Woodstock	Yorkshires.
Dalton, John, Victoria Har.	Yorkshires.
Drake, Robt., Cornwall, P. E. I.	Yorkshires.
Dolson, Sam'l, Alloa	Berkshires.
DeCourcey, Dan'l, Bornholm.	Yorkshires and Chester Whites.
Dewar, Geo. A., Kertch	Berkshires.
Denison, W. S., Denison's Mills, Que.	Chester Whites.
Deeks, J. D., North Williamsburg	Chester Whites.
Dedells, H., Breslau	Berkshires.
Dimmick, M. S., Prince Albert, Sask.	Yorkshires.
Dickson, Jas., Orno	Tamworths.
Donaldson, Jas., Dewitville, Que.	Chester Whites.
Douglas, A. R., Franklin, Man.	Tamworths.
Douglas, John H., Warkworth	Yorkshires.
Douglas & Son, D., Mitchell.	Tamworths.
Duck, R. F. & Son, Port Credit	Yorkshires.
Durham, W. H., Toronto	Berkshires.
Dunn, Geo., Neepawa, Man.	Yorkshires.
Duthie, Jas., Hartney, Man.	Berkshires.
Dunbar, John, St. Marys	Berkshires.

MEMBERS OF THE DOMINION SWINE BREEDERS' ASSOCIATION.—Continued.

Name and Address.	Breed.
Duke, David, Burgoyne	Berkshires.
Duncalfe, W. P., Cartwright Man.	Berkshires.
Eckhardt, John, Bunessan	Yorkshires.
Ewens, Jas. M., Minnedosa, Man.	Berkshires.
Ewan, John, Morden, Man.	Berkshires.
Ede, P. D., Oxford Centre	Yorkshires.
English, Wm. & Geo. E., Petrolia	Yorkshires.
Elliott, Robt., Ormstown, Q.	Chester Whites.
Elliott, Wm., Galt	Tamworths.
Elliottt, W. R. & Son, Guelph.	Yorkshires.
Embro, L. W., Delta.	Berkshires.
Flatt, D. C. & Son, Millgrove	Yorkshires.
Frank & Son, A., The Grange	Yorkshires.
Fraser, J. A., Portage la Prairie	Berkshires.
Featherston & Son, Streetsville	Yorkshires.
Flett, P., Shopland, B. C.	Berkshires.
Field, W. H. & J. O., Vanessa	Berkshires.
Fisher, Geo. E., Chatham, N. B.	Yorkshires.
Fisher, Wesley W., Benmiller.	Poland Chinas.
Forbes, A. S., Winterbourne.	Yorkshires.
Foster, J. D., Havelock	Yorkshires.
Furness, Robt., Vernon River Bridge, P. E. I.	Yorkshires.
Fuller, F. L., Prov. Farm, Truro, N. S.	Yorkshires.
Garner, Jas, Fenwick	Berkshires.
Garbutt, R. J., Belleville	Berkshires.
Graham, And., Pomeroy, Man.	Yorkshires.
Glazier, D. N., Brockville	Yorkshires.
Gardiner, Jas., Grange, Man.	Yorkshires.
Graham, G. W., Udora	Yorkshires.
Graham, John, Ottawa	Yorkshires.
Green, Geo., Fairview	Berkshires.
Green, F. L., Greenwood	Yorkshires.
Greenway, Hon. Thos., Crystal City, Man.	Yorkshires.
Greenwood, Thos., Douglas, Man.	Berkshires.
Greenshields, J. N., Danville, Que.	Yorkshires.
German, Herbert, St. George	Tamworths.
Glen, Geo. B., Fergus	Yorkshires and Berkshires.
George, E. D., Putnam	Chester Whites.
Gregg, T. G., Salford	Berkshires.
Gies, C. R., Heidelberg	Yorkshires.
Grisdale Bros., Graham, Q.	Yorkshires.
Griffin, L. W., Moosomin, Assa.	Yorkshires.
Grigg, Walter, Roseneath	Yorkshires.
Gibbons, P., Marnoch	Berkshires.
Gibson, W. J., Marshfield, P. E. I.	Tamworths.
Gibson, Rich., Delaware	Yorkshires.
Gibson, D. J., Newcastle	Tamworths.
Gilroy, G. A., Glen Buell	Berkshires.
Goodiffe, S. J., Sussex, N.B.	Yorkshires.
Gould, J. P., Markham	Yorkshires.
Groff, Israel, Alma.	Berkshires.
Guy, W. H., Maxwell	Yorkshires.
Harding, R. H., Thorndale	Chester Whites.
Halliday, Frank, Eldon, P. E. I.	Yorkshires.
Hardy, T. C., Rapid City, Man	Yorkshires.
Hall, Jas. W., Ayr	Berkshires.
Hauser, Ignatious, Weisenburg	Yorkshires.
Harper, Robt., Cranston	Yorkshires.
Hamilton, Jas., Shakespeare	Berkshires.
Hare, A. C., Earlsville, Alta.	Yorkshires.
Hamilton, Geo., Neepawa, Man.	Yorkshires.
Haldon Bros., Turgoose, B.C.	Tamworths.
Hallman, A. C., New Dundee	Tamworths.
Hardy, W, Roland, Man.	Yorkshires.
Hales, Alf., Guelph	Yorkshires.
Hadwen, G. H., Duncans, B. C.	Berkshires.
Harris, Geo. N., Lynden	Berkshires.
Hanmer, J. G., Brantford	Yorkshires.
Hartley, W. S. A., Norval	Yorkshires.
Harris, R. N., Gatineau Point, Que	Yorkshires.
Hanmer, D. G., Mt Vernon	Berkshires.
Hicks, J. H., Weyburn, Assa.	Berkshires.
Hillier Bros., Albuna	Chester Whites.
Hyslop, R., Brantford	Berkshires.
Hyde, Geo. A., Shakespeare,	Yorkshires.
Howlet, Ira L., Keldon	Yorkshires.
Hood, G. B., Guelph	Yorkshires.
Hord & Son, John, Parkhill	Yorkshires.
Hodson, F. W., Ottawa	Yorkshires.
Honey, R., Brickley	Yorkshires.
Hoskins, B., The Gully	Tamworths.
Horton, W. L., North Pelham	Yorkshires.
Howard, W. J., Amber	Yorkshires.
Howe, Wm., North Bruce	Yorkshires.
Holmes, C. W., Amherst, N.S.	Yorkshires.
Hogle, S G., Violet	Yorkshires.
Horner, W. J., North Caledon, Que.	Chester Whites.
Howden, J. D., & Son, Whitby	Yorkshires.
Hume & Co., A., Menie	Yorkshires.
Hunter, J. S., Shelburne	Yorkshires.
Hurley, J. M., Belleville	Yorkshires.
Isaac, Geo., Cobourg	Yorkshires.
Jarvis, Robt. L., Harwich	Yorkshires.
James & Son, W., Rosser, Man.	Yorkshires.
Jamieson, W. & J., Laurier.	Yorkshires.
Jamieson, Edwin, Ruther Glen, Man.	Berkshires.
Jackson, John, Abingdon	Yorkshires.
Jackson, Rich, Alma	Yorkshires.
Jeffrey, W. A., Sussex, N.B.	Yorkshires.
Jennings, Fred., Dresden	Yorkshires.
Jennings, Henry. Tottenham	Yorkshires.
Jeffs & Son, E., Bond Head.	Berkshires.
Jones, Wm., Mount Elgin	Yorkshires.
Johnston, Thos., Boissevain, Man.	Yorkshires.
Johnston, Ira, Balmoral	Yorkshires.
Johnson Bros., Underwood	Yorkshires.
Keough, J. E., Rockwood	Yorkshires.
Kelley Bros., Hagersville	Yorkshires.
Kelly, John, Shakespeare	Berkshires.
Kerr, R. J., Mimosa	Berkshires.
Kitching, John, Corwhin	Berkshires.
King, W. P. & G., Oakwood.	Yorkshires.
King Bros., Wawanessa, Man.	Yorkshires.
Kipp, E. A., Chilliwack, B.C.	Yorkshires.
Knight, Ranson & Skinner, Ransomville, N Y.	Yorkshires.
Knox, And., South Dummer.	Yorkshires.
Kruger, Louis, Alsfeldt	Yorkshires.
Lahmer, Thos., Vine	Berkshires.

MEMBERS OF THE DOMINION SWINE BREEDERS' ASSOCIATION.—Continued.

Name and Address.	Breed.
Lang, Geo., Indian Head, Assa.	Berkshires.
Langlier, Gus. A., Quebec, Q.	Yorkshires.
Lahmer, John, Vine	Berkshires.
Lee & Son, Jos., Dunham, Q.	Berkshires.
Leeson, D., Copenhagen	Berkshires.
Lee, J. W., Simcoe	Yorkshires.
Lennox, W. J., Guelph	Yorkshires.
Lemon, S., Kettleby	Berkshires.
Lennox, W. J., Newton Robinson	Yorkshires.
Lester, H., Burford	Yorkshires.
Little, Thos., Kirkwall	Yorkshires.
Lyons, S. J., Norval	Berkshires.
Lowden, M. L., Binbrook	Yorkshires.
Lloyd-Jones, John, Burford	Yorkshires.
Lund, Thos., Stonewall, Man.	Yorkshires.
Margetson Bros., Miami, Man.	Yorkshires.
Martin, R. G., Marysville	Berkshires.
Mark, G. H., Oakwood	Berkshires.
Martindale, F., York	Berkshires.
Martin, W. C., Pilot Butte, Assa.	Yorkshires.
Martin, W. A., Corbyville	Yorkshires.
Main, Aaron, Sheffield	Yorkshires.
Martin, E. E., Canning	Berkshires.
Mabon, W., Baldur, Man.	Berkshires.
Mayloney, F. A., Chapeau, Que.	Yorkshires.
Martin, W. H., Warden, Que.	Berkshires.
Madget, Geo., Malton	Berkshires.
Maharey, Wm., Russell	Yorkshires.
Meldrum, Alex., Billerica	Yorkshires.
Mitchell, John Jr., Waterdown	Yorkshires.
Miller, J. E., Dunham, Que.	Chester Whites.
Miller, D., Maplewood	Yorkshires.
Moody & Sons, R., Guelph	Berkshires.
Moore, W. J., Lindsay	Tamworths.
Morton, W. H., Beausejour, Man.	Yorkshires.
Morgan, L. E., Milliken	Berkshires.
Monroe, C. F., South End	Berkshires.
Morrow, R. O., Hilton	Tamworths.
Mortson & Son, W. H., Brandon, Man.	Yorkshires.
Murdock, Wm., Palmerston.	Yorkshires.
Mulhausen, Wm., Walkerton	Yorkshires.
McCarthy, Ed., Tamarisk, Man.	Yorkshires.
McNelly, W. J., Elmwood	Yorkshires.
McAvoy, C. C., Atha.	Berkshires.
Macaulay, T. B., Montreal, Que.	Yorkshires.
McFarlane & Ford, Dutton.	Berkshires.
McLatchie, I. H., Gatineau Point, Que.	Yorkshires.
McPherson, A., Rutherford.	Chester Whites.
McEwen, Jas., Kertch	Berkshires.
McKellar, J. M., Belmont	Tamworths.
McLellan, Wm., Forester's Falls	Berkshires.
McGill, J. A., Neepawa, Man.	Berkshires.
McKinnon, D. C., Atherley.	Yorkshires.
McDiarmid, H. S., Fingal	Yorkshires.
McMillan, Dugald A., Kirkhill	Yorkshires.
McDonald, W. R., Ridgetown.	Tamworths.
McDonald, John, Crinan	Yorkshires.
McLoughry, H. D., Markdale	Berkshires.
McDonell, D. C., Grenfell, Assa.	Berkshires.
McDonald, John, Bradford	Yorkshires.

Name and Address.	Breed.
McDowell, H. T., Shawville, Que.	Chester Whites.
Newson, Alex., Peepabun	Yorkshires.
Nichol, Robt., Brussels	Yorkshires.
Nichol, Alex., Brandon, Man	Berkshires.
North, Geo. Marden	Tamworths.
Ontario Agcl. College, Guelph	Berkshires, Yorkshires and Tamworths.
Owens, Hon. Wm., Montreal. Que.	Yorkshires.
O'Donnell, Thos., Gad's Hill.	Tamworths.
Patterson, Wm. Churchill	Berkshires.
Playfair, Geo. Jr., Baldur, Man.	Yorkshires.
Paul, J. G., Moosomin, Assa.	Yorkshires.
Plaunt, X., Northcote	Berkshires.
Paige, Geo. W., Coaticooke, Que.	Chester Whites.
Park, Duncan, Fleming, Assa.	Berkshires.
Peck, Wm. F., Snowflake, Man	Berkshires.
Preston, R. S., Pilot Mound, Man.	Tamworths
Peel, Wm., Pigeon Bluff, Man.	Berkshires.
Pearson, S. J., Meadowvale.	Berkshires.
Peacock, F. J., Crossfield, Alta	Yorkshires.
Penson, R. J., Melita, Man	Yorkshires.
Pritchard, R. J., Roland, Man	Berkshires.
Phillips, W. H., Frankford	Berkshires.
Pomeroy, W. J., Belmore	Yorkshires.
Potter, A. B., Montgomery, Assa.	Yorkshires.
Quinn, J. M., Carleton Place.	Yorkshires.
Reid & Co., R., Hintonburg.	Tamworths and Berkshires.
Reid, Jos., Reid's Mills	Berkshires.
Rettie, Jas., Norwich	Yorkshires.
Reed, Isaac, Ardtrea	Yorkshires.
Ridley, J. W., Manitou, Man.	Berkshires.
Rickett, C. E., Andover, N.B.	Yorkshires.
Rice, F., Binscarth, Man.	Yorkshires.
Rickert, C. B., Mannheim	Berkshires.
Richardson, J. A., South March	Tamworths.
Rich, W. P., Clark	Yorkshires.
Ross, A. W., Bromley	Yorkshires.
Robinson, W. T., Goodwood.	Yorkshires.
Rodgers, C. A., Jarvis	Berkshires.
Rogers, L., Weston	Yorkshires.
Rogers, C. F., Woodstock N. B.	Yorkshires.
Ross, H. H., Burford	Yorkshires.
Roxley, John W., Manitou, Man.	Yorkshires.
Ross, D., Streetsville	Yorkshires.
Robson, T. W., Manitou, Man.	Yorkshires.
Russell, Jas. A., Precious Corners	Yorkshires.
Rudd, W. J., Eden Mills	Yorkshires.
Rusnell, D. H., Stouffville.	Berkshires.
Standish, C. B., East Hatley, Que.	Chester Whites.
Straub, A., Elmira	Yorkshires.
Scarf & Son, Thos., Rocky Saugeen	Yorkshires.
Sargent, F. O., Eddystone	Tamworths.
Shannon Bros., Cloverdale, B. C.	Yorkshires.
Stranaghan, Robt., Grenfel, Assa.	Tamworths.
Shaw, Robt., Brantford	Yorkshires.
Scarf, A., Cumming's Bridge.	Yorkshires.
Stafford & Sons, John, Crystal, N. Dakota.	Yorkshires.

MEMBERS OF THE DOMINION SWINE BREEDERS' ASSOCIATION.—Concluded.

Name and Address.	Breed.
Snell, R. P., Snelgrove	Berkshires.
Stewart, D., Hampstead	Yorkshires.
Semple, H., Hereward	Berkshires.
Spencer, W. H., Guilds	Berkshires.
Stewart, Arthur, Elfreda	Yorkshires.
Stevenson, A., Attwood	Yorkshires.
Stevenson, J. R., Udora	Yorkshires.
Stewart, F. B., Espyville Stat., Pa.	Yorkshires.
Sweet, H. E., West Brome, Que.	Chester Whites.
Sheperdson, W. J., Walter's Falls	Yorkshires.
Shearer, W. C., Bright	Yorkshires.
Silverthorne, John, Scotland.	Chester Whites.
Semple, Hugh, Hereward	Yorkshires.
Swift Bros., Clover Bar, Alta.	Berkshires.
Snell & Lyons, Snelgrove	Berkshires.
Shields, W. A., Milton	Berkshires.
Stewart, Jas. I., Gladstone, Man.	Yorkshires.
Scissons, John, South March,	
Stewart, A. M., Dalmeny	Berkshires.
Smith, Geo. M., Haysville	
Smith, Geo. M., Hagersville.	Yorkshires.
Smith, A. B., Moosomin, Assa.	Berkshires.
Stiver, Byron, Mount Albert.	Yorkshires.
Speirs, Alex., New Floss	Berkshires.
Smyth, R. L., Fargo	Poland Chinas.
Smith, W. M., Scotland	Poland Chinas and Chester Whites.
Smith, Mrs. Mary Ann, Yorkton, Assa.	Yorkshires.
Siprell & Carroll, Carholm	Berkshires.
Smith, Wm., Columbus	Yorkshires.
Srigley, John, Allandale	Berkshires.
St. John, W. G., Sunderland.	Yorksires.
Stouffer, Geo. A., Ringwood	Yorkshires.
Scott, Robt., Souris, Man.	Yorkshires.
Stockton, H. M., Redgrave, B. C.	Yorkshires.
Scott, John, Atha.	Berkshires.
Stone Stock Co., F.W., Guelph.	Berkshires.
Snowden, Sam'l, Bowmanville	Berkshires.
Stuart, H., Burford	Yorkshires.
Squire, John, Oxley	Berkshires.
Shurtleff, Morley, Glenburnie.	Yorkshires.
Taylor, Robt., Goodwood	Yorkshires.
Trann, W. L., Crystal City, Man.	Yorkshires.
Taylor, W. H., Fleming, Assa.	Berkshires.
Taylor, John, Rockwood	Yorkshires.
Tran, W. H., Cedar Grove	Yorkshires.
Teasdale, Thos., Concord	Berkshires.
Tregellius, W. I., Calgary Alta.	Yorkshires.
Thompson, S. J., St. James, Man.	Yorkshires.
Thompson, Wm., White Rose	Berkshires.
Thompson, Jas. T., Sardis, B.C.	Yorkshires.
Thoms, John, Clay Bank	Yorkshires.
Tuckwell, H. H., Gladstone, Man.	Tamworths.
Tufts & Son, Robt., Tweed	Yorkshires.
Twiss, J. B., Woodburn	Tamworths.
Vasey, H. M., Ladner, B. C.	Yorkshires.
Vance & Son, R., Ida	Berkshires.
Vanderlip, H. M., Cainsville.	Berkshires.
Verral, G. W., Toronto	Yorkshires.
Walker, J. C., Neepawa, Man.	Berkshires.
Watt & Son, J., Salem	Berkshires.
Waghorn, T. G., Rapid City, Man.	Chester Whites.
Wallace, W. A., Kars	Berkshires.
Weightman, J. J., West Hall, Man.	Yorkshires.
Wheeler, H. D., West Winfield, N. S.	Yorkshires.
Weir & Son, John, Northfield Centre	Berkshires.
Wilson & Sons, Geo., Wapella, Assa.	Yorkshires.
Wilson, Mrs. A. J., Wellington, Ohio	Yorkshires.
Weir & Son, J., Northfield Centre	Yorkshires.
Wiley, Nelson, Wisbeach	Yorkshires.
Willard, E. G., Millgrove	Yorkshires.
Wright, W. E., Glanworth	Chester Whites.
Wilson & Son, J., Fergus	Yorkshires.
White, H. J., Elkhorn, Man.	Yorkshires.
Wilson, Wm., Brampton	Berkshires.
Willis, Amos, Gorrie	Yorkshires.
Young, Walter, Sheppardville, Man	Yorkshires.
Young, Sam'l, Guelph	Yorkshires.
Yuill & Son, Jos., Carleton Place	Berkshires.

Western Ontario Poultry Association

ANNUAL MEETING.

The annual meeting of the Western Ontario Poultry Association was held in the Council Chamber of the City Hall, Guelph, December 8th, 1904, at 2 p. m. The President, Wm. McNeil in the Chair.

The minutes of the previous meeting were taken as read.

The Secretary-Treasurer then read the financial statement which was adopted.

The advisability of adding the following classes was discussed, and on motion was referred to the new Board of Directors:

1. A class for Cavies.
2. A Novice Class for White Wyandottes.
3. A class for Black Sumatra Game.
4. A class for Black Orpingtons.

DIRECTORS' MEETING.

It was decided on motion to add the following classes to the Prize List:
Black Japanese Bantams,
Polish Bantams, unbearded.
Columbia Wyandottes.
Rose Comb Black Minorcas.
Black Orpingtons.
Black Sumatra Games.

It was also decided to strike off the class for Cross-Breds, and Barred Rock Novice Class.

In the turkey classes it was decided to have the White Turkeys show by themselves, and have the Black Turkeys show in with A. O. V.

It was decided to add a clause to the List providing for a larger number of prizes in case there were 30 or more entries in any section. Where there are 30 or more entries the prizes will be $4, $3, $2, $1, $1, $1, 50c, 50c, 50c, 50c.

Entries. It was decided that late entries should be accepted until Saturday following the regular date for closing entries on payment of 50 per cent. added to the regular entry fee.

The questions of extra coops, and the system of cooping, were referred to the Winter Fair Management.

In the Pigeon Classes, it was decided to add a class for Black Jacobins; to divide Show Homers into two classes: Show Homer, Blue or Black Chequered, and Show Homer, A. O. C.

Also to divide the African Owls into two classes as follows: African Owl, Blue or Silver, and African Owl, A. O. C.

In Fantails it was decided to have the Black Fantails show with the Blue instead of showing with the A. O. S. C.

It was decided to strike the class for Runts off the List.

It was also decided that the Canadian Pigeon Fanciers' Association should have the privilege of submitting the list for young pigeons, on the understanding that their Association would pay the difference between the entry fees and the prize money paid in the classes added.

The meeting adjourned.

OFFICERS FOR 1905.

Hon. President ..... F. W. Hodson, Ottawa.
President ..... Wm. McNeil, London.
1st. Vice-President ..... A. Bogue, London.
2nd. Vice-President ..... M. T. Burn, Tillsonburg.
Secretary-Treasurer ..... A. P. Westervelt, Toronto.
Auditor ..... J. M. Duff, Guelph.

Directors:

L. H. Baldwin, Deer Park.
A. W. Tyson, Guelph.
G. G. Henderson, Hamilton.
N. Cosh, Port Dover.
P. Grier, Owen Sound.
R. Oke, London.
R. C. Coates, Thamesville.
C. H. Wilson, Hawkesville.

Representatives to Fairs:

Toronto Industrial ..... Wm. McNeil; W. Barber.
Western Fair ..... J. H. Saunders; W. H. Beattie.
Brantford ..... J. H. Minshall; G. Colwell.
Guelph ..... Wm. McNeil; A. W. Tyson.

FINANCIAL STATEMENT OF THE WESTERN ONTARIO POULTRY ASSOCIATION.

For the Year Ending October 31st, 1904.

Receipts.		Expenditures.	
Cash on hand from previous year, as per last report ...	$ 320 42	Cash paid for prizes at Provincial Winter Fair	$2,125 75
Members' fees	243 00	Secretary's salary	200 00
Legislative Grant	1,000 00	Directors' fees and expenses..	25 55
Entry fees and scoring fees...	1,280 90	Postage and stationery	7 75
Special cash prizes collected...	350 00	Printing and advertising	64 38
Miscellaneous items	4 35	Judges and Judges' clerks ...	274 80
		Express paid on special prizes	6 11
		Feed for poultry at Show	29 38
		Wages accounts at Show	200 45
		Badges and prize ribbons	96 50
		Coops for pigeons	70 50
		Auditor	5 00
		Miscellaneous items	2 75
Total	$3,198 67	Total	$3,108 92
		Balance on hand	89 75

Examined and found correct.
J. M. Duff, Auditor.

Wm. McNeil, *President*.
A. P. Westervelt, *Treasurer*.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES ENTERED WINTER FAIR, 1904.

Name and Address.	Breed.
Andrews, F. A., London	White Plymouth Rocks.
Adams, F. P., Brantford	Buff Orpingtons.
Ashman, T. J. & Son, London	Barred Plymouth Rocks.
Asman, Geo. J., Detroit, Mich	Pigeons.
Alexander, W. J., Ashgrove	Plymouth Rocks, Turkeys, Ducks, Cross Breds.
Aird, P. E., Montreal, Que	Buff Orpingtons.
Armstrong, A. A., Fergus	Barred Plymouth Rocks, Dressed Poultry.
Arthur, James, London	S. Laced Wyandottes.
Awde, F. D., Cheapside	White Plymouth Rocks.
Baldwin, L. H., Deer Park	White Wyandottes, Dressed Poultry.
Barr, John A., Ingersoll	Buff Orpingtons.
Barber, W., Toronto	Game, Game Bantams.
Beattie, W. H., Wilton Grove	Turkeys.
Becker, H. F., Waterloo	S. C. Brown Leghorns.
Bell, Fred, 400 Crawford St., Toronto	Pigeons.
Benson, John W., Midland	Pigeons.
Biggar, W. H., Trafalgar	Buff Orpingtons, Plymouth Rocks. Langshans.
Bogue, Allan, London	Dorkings, Houdans. Polands, Hamburgs, Turkeys, Ducks.
Brown, A. G., Watford	White Plymouth Rocks.
Burrmount Pigeon Lofts, Ottawa	Pigeons.
Burn, M. T., Tillsonburg	Dominiques, Game, Polands, Geese, Ducks, Pigeons.
Brierly, Geo., Guelph	Leghorns, Wh. Wyandottes.
Barton, A. W., Toronto	Pigeons.
Bartlett, Rev. S. T., Colborne	Plymouth Rocks, Wyandottes.
Bainard, Frank D	Turkeys.
Bush, W. H., St. Thomas	Polands.
Barker, R. K., Toronto	Pigeons.
Builder, E., Dundas	S. C. White Leghorns.
Boyce, J. R., London	Barred and Buff Plymouth Rocks. Partridge Wyandottes, R. C. Brown Leghorns.
Butler, Walter S., London	Black Red Game.
Boultbee, Alfred, Toronto	Buff Orpington.
Bogue, G. & J., Strathroy	Wyandottes, Dominiques, Javas, Spanish, Houdans, Creve Couers, LaFleche, Polands, Red Caps, Sultans, Ducks.
Bowden, H. C., Midland	Plymouth Rocks.
Bell, W. J., Angus	White Leghorns, Turkeys.
Bessey, W. H., Coleman	White Plymouth Rocks.
Bradley, John, Milton	Dressed Poultry.
Brill, L. A., London, Ont	R. C. White Leghorn, Black Minorca, Bantams.
Barber, R. H., Guelph	Game, Cross-Bred Chicks.
Brock, G. W. P., Waterford	R. C. Blk. Minorcas.
Bremer Stock Farm, Waterdown	Plymouth Rocks, Turkeys, Geese, Ducks.
Barber, Victor, Toronto	Bantams, Pigeons.
Blyth, C. M., Marden	Buff Orpingtons, Cross Breds.
Bastien, Dr. J. H., Rigaud, P. Q	Game.
Baker Bros., Guelph	Turkeys, Geese and Ducks.
Cadman, Wm., St. Thomas	Leghorns, Hamburgs.
Carrier, C. H., Toronto	Pigeons.
Cuttler, W. W., Welland	Cochins, Wyandottes, S. C. Br. Leghorn, Buff Orpingtons.
Crow, J. Warren, Welland	Plymouth Rocks.
Coates, Dr. R. C., Thamesville	S. C. Wh. Leghorn.
Caldwell, W. A., Bolton	Buff Orpington.
Crowis, W. H., Niagara Falls, N.Y	Bantams.
Carroll, J. A., London	Plymouth Rocks, Wyandottes, Game, Cochins.
Crowe, C. R., Guelph	Bantams.
Conley, F. J., St. Marys	R. C. Br. Leghorns.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION.—Continued.

Name and Address.	Breed.
Coulter, John, Bain Ave., Toronto	White Wyandottes.
Curtiss & Co., W. R., Ransomville, N.Y.	White Wyandottes, Leghorns, Ducks.
Colwell, George, Paris Station	Leghorns, Geese, Ducks, Cochins, Bantams.
Crowe, John, Guelph	Blk. Red Game, Duckwing Bantams.
Chinneck, F., Napanee	Orpingtons.
Chedoke Poultry Yards, Hamilton	White Plymouth Rocks, Bantams.
Colson, John, Guelph	Plymouth Rocks, Javas, Ducks.
Cosh, Newton, Port Dover	Plymouth Rocks, Andalusians.
Cook & Son, Frank, Midland	Bantams, Pigeons, Rabbits.
Corbet, Henry E., Guelph	Bantams, Pigeons.
Dewar Bros., Milton	Leghorns.
Doncaster, E. P., Bowmanville	Buff Orpingtons.
Daniels, C. J., Toronto	Javas, Game, Leghorns, Orpingtons, Red Caps.
Dockstader, M. H., London	Plymouth Rocks.
Daniel & Gofton, Plattsville	Wyandottes, Game, S. C. Brown Leghorns, Orpingtons.
Duman, H. B., Toronto	Silkies, Bantams.
Doughty, James, Guelph	Bantams.
Doan, A. E., Watford	Black Leghorns.
Daly & Dill, Seaforth	White Plymouth Rocks.
Degroff, George, Napanee	Buff Orpingtons.
Durston, R., Toronto	Blk. Minorcas.
Dewar Bros., Milton	White Wyandottes.
Dinner, R., St. Thomas	Wyandottes, Game.
Dundas, James, Deer Park	Buff Leghorns.
Ellis, Wm., Prescott	Blk. Minorcas.
Eidt, E. H., Stratford	White Wyandottes.
Elliott, George, Welland	White Wyandottes.
Fenn, John, Plattsville	White Wyandottes.
Ferguson & Orr, Brantford	Leghorns.
Farley, James, St. Thomas	Plymouth Rocks.
Ford & Son, James, Drumquin	Wyandottes.
Fink, A., Woodstock	Dominiques.
Furminger, S. D., St. Catharines	Plymouth Rocks, Dorkings, Orpingtons, Bantams, Ducks.
Fyfe, Geo. Gourock	Dressed Poultry.
Fullerton, W. J., Toronto	S. C. Wh. Leghorns.
Fox, Wm., Toronto	Rabbits, Hares.
Foster, Joseph, Brampton	Plymouth Rocks, Dorkings.
Finn, Thos., Toronto	R. C. Wh. Leghorns.
Fidler, J. E., Brockville	Barred Plymouth Rocks.
Geoghegan, Rev. Thos., Hamilton	Brahmas, Br. Plymouth Rocks.
Glendenning, J. W., Woodstock	Duckwing Games.
Gough, M. E., Toronto	White Cochins.
Graham, A. W., St. Thomas	Wyandottes.
Grier & Pratt, Owen Sound	S. C. Wh. Leghorns.
Good, J. A., Berlin	Buff Orpingtons.
Gerrard, Andrew, Hamilton	Lt. Brahmas.
Glanville, Lloyd, London	Cochins, Minorcas.
Graham Bros., Parkhill	Buff Orpingtons.
Goldie, Roswell, Guelph	Dorkings, Pheasants.
Henderson, Wm. A., Toronto	Game.
Harron, J. A., Berlin	Plymouth Rocks, Leghorns.
Henderson & Billings, St. Marys	Wyandottes, R. C., Br. Leghorns.
Hagen, H. A., Berlin	White Plymouth Rocks.
Hammall, Wm., Toronto	Game, Game Bantams.
Hodgkin, F. W., Guelph	Plymouth Rocks, Leghorns, Canaries.
Hamilton, Geo. C., Fergus	Wyandottes.
Hanner, H. E., Thamesville	Buff Orpingtons.
Hamilton, John G., Galt	Wh. Plymouth Rocks.
Hinds, C. C., Barrie	Plymouth Rocks, Bantams.
Howard, A. E. & W., Guelph	Bantams.
Henderson, G. G., Hamilton	S. C. Br. Leghorns.
Hart & Grimoldby, Owen Sound	Game Bantams.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION.—Continued.

Name and Address.	Breed.
Hall, Wm., Napanee	Wyandottes.
Hoover & Nighswander, Markham	Leghorns, Dorkings, Brahmas, Wyandottes.
Hussey, J. E., Melbourne	Leghorns.
Hockin, Chas., London	Plymouth Rocks.
Hellyer, A. W. E., Ottawa	Buff Orpingtons.
Hicks, John, Burford	Plymouth Rocks.
Hoffman, H. A., Ridgetown	Buff Orpington.
Hoggarth, Wm. E., Hensall	S. C. Wh. Leghorns.
Ionson, G. A., Ingersoll	Andalusians, Minorcas, Plymouth Rocks.
Irwin, Geo. W., Seaforth	Brahmas, Wyandottes, Dorkings, Ducks.
Isbell, J. T., Toronto	Pigeons.
James, W. J., St. Thomas	Game.
Knight, I. T., Guelph	Langshans, Plymouth Rocks, Andalusians, Ducks.
Karn, J. H., Guelph	Pigeons.
Karn, Geo., Guelph	Pheasants.
Krouse, F. W., Guelph	Plymouth Rocks, Wyandottes.
Knight, Alfred, Davisville	Pigeons.
Knight, W. R., Bowmanville	Javas, Andalusians, Turkeys, Ducks, Houdans.
Kiley, T. J., Aylmer	Spanish, Dorkings, Bantams.
Kemp, R. W., London	Wyandottes.
Lemon, Wilber, Lynden	Wyandottes, Leghorns.
Lampman, J. H., Palmyra	Orpingtons.
Lawrie, G. J., Klienburg	Brahmas, Cochins, Leghorns, Plymouth Rocks, Houdans, Polands, Ducks.
Laidlay, J. R., Paisley	Leghorns.
Luxton, A. G. H., Milton West	Game, Leghorns, Turkeys.
Lewis, A., Davisville	Brahmas.
Lockwood, Warren M., Melbourne	Leghorns.
Marr, D., M. D., Ridgetown	Plymouth Rocks.
Martin, John S., Port Dover	White Wyandottes.
Middlebrook, George, Guelph	White Wyandottes.
Mosley, Harvey, Owen Sound	Buff Orpington.
Minshall, J. H., Brantford	Black Minorca.
Magill, J. H., Port Hope	G. Laced Wyandottes, Pigeons.
Marshall, R. H., Galt	Game, Orpingtons.
Murray, W. G., Strathroy	Cochins, Wyandottes, Leghorns.
Massie, Chas., Port Hope	Wyandottes, Orpingtons, Pigeons.
Meadows, James, Rockwood	G. Laced Wyandotte.
Modlin, John, Hamilton	Game, Leghorns.
Montgomery, J. C., Brantford	S. Laced Wyandottes.
Millard, I. K., Dundas	Plymouth Rocks.
Morgan, A. J., London	R. C. Wh. Leghorns.
Mounce, J. E., Armstrong's Mills	Dressed Poultry.
Morley, James, Milton	Blk. Red Game.
Martin, John S., Port Dover	White Wyandottes.
McCabe, Thos. F., East Toronto	Buff Wyandottes.
McFarlane, W. G. J., Weston	S. G. Dorking.
McCurdy, R., London	Langshans, Dressed Poultry.
McCormick, James, London	Plymouth Rocks.
McDonell, John, Brantford	Dressed Poultry, Brahmas.
McCormack, W. J., Toronto	Pigeons.
McDougall & Son, A., Milton	Turkeys, Geese and Ducks.
McDonell, F. P., Watford	Wyandottes, Minorcas.
McKay, J. C., Georgetown	Plymouth Rocks, Orpingtons.
McKee, John, Norwich	Dorkings.
McGregor, Hugh, Caledonia	Orpingtons.
McNeil, Wm., London	Polands, Japanese Silkies, Bantams.
McCormick, James M., Rockton	Dorkings, Ducks, Bantams, Dressed Poultry.
McMullen, Thos. F., London	Buff Orpingtons.
McLoud, Wm., London	Plymouth Rocks.
Niven, Dr. J. S., London	Buff Orpingtons.
Nixon, J. W., Woodbank	Indian Game

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION.—Continued.

Name and Address.	Breed.
Ottawa Pigeon Lofts, Ottawa	Pigeons.
Oakley, Wm., Toronto	Barred Plymouth Rocks.
Oke, Richard, London	Cochins, Blk. Wyandottes, Javas, Leghorns, Creve Couers, La Fleche, Hamburgs, Sultans, Bantams.
Osborne, W. M., Brockville	Leghorns, Minorcas.
Panken, John, Guelph	Canaries.
Poole, George, Guelph	White Wyandottes.
Pickard, J. J., Drumbo	Brahmas.
Player, W. H., Galt	S. C. Br. Leghorns.
Pickering, E. A., Willowdale	Wyandottes.
Packer, Wm. E., Aurora	Rhode Island Reds.
Philpot & Son, James, Guelph	Game, Bantams.
Paul, J. J., Sebringville	Buff Orpingtons.
Pawling, H. J., St. Catharines	Wyandottes, Bantams.
Pascoe, J. A., Mt. Dennis	Wyandottes, Orpingtons, Bantams.
Plaunt, Wilfred	Pigeons.
Roos, C. G., Preston	Ducks.
Radley, Maurice, Outremont, Montreal	Plymouth Rocks.
Reid, W. H., Kingston	Javas, Game, Bantams, Pigeons.
Ridler, L., Guelph	Blk. Minorcas, Pigeons.
Rook Bros., Prescott	Bantams.
Ruby & Son, H. S., Midland	Plymouth Rocks, Wyandottes, Orpingtons, Houdans.
Ruppell, Russell, Elmira	Plymouth Rocks.
Ruby, Chas., Berlin	Plymouth Rocks.
Readwin & Steffler, A. & T., Guelph	Cochins, Wyandottes, Leghorns, Dorkings, Ducks.
Roberts, John W., St. Thomas	Blk. Red Game.
Rawsthorne, H., Hamilton	Blk. Langshans.
Rundle, Sam, Guelph	Wyandottes.
Rogers, R., Hamilton	Bantams.
Rice, Thos., Whitby	Plymouth Rocks, Leghorns, Buff Orpingtons.
Starling, J. Sidney, St. Catharines	White Wyandottes.
Salisbury, Harry, Stratford	White Plymouth Rocks.
Sherlock, Thos., London	Pyle Game.
Spry & Mick, Toronto	Buff Wyandottes.
Sholdice & Sage, London	White Plymouth Rocks.
R. M. Scott, Toronto	Pigeons.
Schelly, S. J., Echo Place	Plymouth Rocks.
Smith & Brown, Columbus	Plymouth Rocks.
Switzer, Wm. H., Mayfair	Br. Plymouth Rocks, Buff Orpingtons.
Shea, Thos. M., Fergus	Geese, Ducks.
Spiers Bros., Guelph	Bantams.
Slessor & McCracken, London	Langshans, Bantams.
Scott & Howard, Guelph	Leghorns, Andalusians.
Smith, Thos. D., Hickson	Plymouth Rocks.
Stewart, C. A., London	Buff Cochins.
Scott, T. H., St. Thomas	Wyandottes.
Scott, Hugh A., Caledonia	Buff Orpingtons.
Sage, L. C., London	Brahmas, Plymouth Rocks, Wyandottes, Dressed Poultry.
Scanlon Bros., Ennotville	Plymouth Rocks, Geese, Ducks.
Snyder, Elias, Burgessville	Plymouth Rocks.
Smiley, S. H., St. Thomas	Rhode Island Reds.
Stroth, M. H., Waterloo	Orpingtons.
Teale, W. J., Guelph	Langshans, Silkies, Bantams.
Tolson, J. H., Melbourne	Leghorns.
Tossy, Geo. A., Hamilton	Brahmas.
Tilt, C. A. R., Doon	Brahmas, Langshans, Geese, Ducks.
Troth, Ferdenan, Toronto	Game.
Tyson & McMaster, Guelph	Game, Bantams.
Thompson & Connor, Marmora	Plymouth Rocks, Leghorns.
Topping, Nathan, Woodbank	Game, Buff Orpingtons.

MEMBERS OF THE WESTERN ONTARIO POULTRY ASSOCIATION.—Concluded.

Name and Address.	Breed.
Thompson, W. J., Guelph	Leghorns, Bantams, Pigeons.
Trew, D. C., Lindsay	Houdans.
Telfer Bros., Milton West	Plymouth Rocks, Dorkings, Dominiques, Game, Cross Breds, Turkeys, Geese, Ducks.
Vance, Geo., Woodstock	Duckwing Game.
Wallace, H. H., London	Wh. Plymouth Rocks, Ducks.
Worth, W. Jr., St. Thomas	R. C. Blk. Minorcas.
Wilson, Wm., Guelph	Wh. Wyandottes.
Wilson, E. J., Oshawa	Dorkings.
Wilson, Wm. C., & Sons, Hawkstone	R. C. Br. Leghorns.
Wales, F., Milton	Brahmas, Cochins, Plymouth Rocks, Leghorns.
Woodrow & Sons, H. J., Burgessville	Dressed Poultry.
Westbury, Frank, London	Plymouth Rocks.
Wright, W. E., Glanworth	Turkeys.
White, Geo. J., Hamilton	Bantams, Pigeons.
Walker, James, Fergus	Plymouth Rocks.
Wright & Leslie, Owen Sound	Wyandottes, Leghorns.
Williams, Arthur, London	Plymouth Rocks.
Wyatt, H., London	Cochins.
Wood, J. W., Clayton, N.Y.	Turkeys.
Wellwood, Arthur, Aylmer West	Creve Coners, Bantams.
Zavitz, L. V., Toronto Junction	Black Minorcas.

Eastern Ontario Poultry Association.

ANNUAL MEETING.

The Annual Meeting of the Eastern Ontario Poultry Association was held in the Imperial Building, Ottawa, Thursday evening, March the 9th, 1905, President O. E. Culbert in the chair.

The minutes of the previous meeting having been published in the annual report were taken as read.

The Treasurer presented the Financial Statement of the Association for the past year, and on motion of W. F. Garland, seconded by J. S. Allen, it was adopted.

Moved by A. W. E. Hellyer, seconded by J. Belford, "That judging at the next Poultry Show be by comparison." Carried.

Moved by F. A. James, seconded by W. F. Garland, "That the prizes at the next Show be indicated by ribbons instead of cards." Carried.

Moved by S. Short, seconded by F. A. James, "That Messrs. Butterfield, Jarvis, Elford, Cosh and Wagner be judges at the next Eastern Ontario Poultry Show, and that Mr. Wagner receive $35.00 as his fee for judging." Carried.

Moved by Geo. Higman, seconded by J. S. Allen, "That the rules be amended to read as follows: That all exhibits be in the building not later than 9 p. m. Monday, any arriving later to be debarred from competition and that judges commence work at 10 a. m. sharp, Tuesday." Carried.

Moved by G. Higman, seconded by J. S. Allen, "That all exhibitors and general public be excluded from the building at time of judging." Lost.

Moved by Lord Aylmer, seconded by J. S. Allen, "That in the opinion of this Association, it is impossible to hold a successful Poultry Show at the late date at which it has been held during the years 1904 and 1905, and that this Association is of the opinion that the Eastern Ontario Poultry Show should be held not later than the month of January in any year." Carried.

Moved by John A. Belford, seconded by Jos. Allan, "That a delegation be sent by this Association to interview the Honorable, the Minister of Agriculture, to impress upon him the absolute necessity of holding the Eastern Ontario Poultry Association Show at an earlier date than it has been held during the years 1904 and 1905, and to make arrangements for the holding of the Show at such earlier date, and that the expenses of such delegation be paid out of the funds of this Association, and that such delegation consist of two members to be now elected." Carried.

Messrs. W. F. Garland and A. W. E. Hellyer were appointed to act on this delegation.

It was the general opinion of the meeting that if the date could be arranged to have the show immediately follow the Winter Fair at Guelph, it would add considerably to the strength of the Association and improve the number of exhibits.

Moved by A. Delcorde, seconded by W. J. Annand, "That Rhode Island Reds be divided into R. C. and S.C." Lost.

Moved by W. J. Annand, seconded by J. S. Allen, "That the A. O. V. Orpington Class be divided into Black and White." Lost.

It was decided to make "Black Cochin Bantams" read, "Any Other Variety Cochin Bantams."

Moved by D. Rook, seconded by G. A. McInnes, "That a class be provided for A. O. V. Game Bantams." Carried.

Moved by F. X. Laderoute, seconded by L. F. Deslaureirs, "That the Magpie Class read 'Black, Red or Yellow' and 'A. O. C.' and that classes be added for 'Blue or Black Chequered Show Homer' and 'O. A. C. Show Homer,' and that the 'Dun Carrier' class and the 'Blue and Black Pied Pouter' class be struck out, and that 'Red or Yellow Pouter' be made 'A. O. C.' and that there only be one class for 'S. F. Tumblers.'" Carried.

Moved by Mr. Higman, seconded by Mr. Laderoute, "That Squabs be added to the Dressed Poultry list, and that the prizes be $2.00; $1.00 and 50 cents." Carried.

Moved by J. Belford, seconded by R. A. Robertson, "That in all exhibits of dressed poultry, the poultry must have been owned and fed by exhibitor for at least three weeks previous to the Show." Carried.

Moved by S. Short, seconded by Mr. Lake, "That this Association assist the Western Association in any way it can in obtaining lower express rates for fancy poultry from the two Canadian Express Companies." Carried.

OFFICERS FOR 1905.

Honorary President ..... Lord Aylmer, Ottawa.
President ..... O. E. Culbert, Ottawa.
1st Vice-President ..... Geo. Higman, Ottawa.
2nd Vice-President ..... W. H. Reid, Kingston.
Secretary-Treasurer ..... A. P. Westervelt, Toronto.
Directors:
J. H. Warrington, Cornwall. — W. F. Garland, Hintonburg.
F. J. Blake, Almonte. — A. W. E. Hellyer, Ottawa.
S. Short, Ottawa. — C. J. Daniels, Toronto.
W. M. Osborne, Brockville.
Delegates to Toronto Exhibition ..... C. J. Daniels, Toronto.
A. G. Gilbert, Ottawa.
Delegates to Ottawa Exhibition ..... Lord Aylmer, Ottawa.
O. E. Culbert, Ottawa.
Delegates to Winter Fair, Guelph ..... O. E. Culbert, Ottawa.
F. J. Blake, Almonte.
Geo. Higman, Ottawa.
Auditor ..... J. M. Duff, Guelph.
Superintendent ..... R. E. McKinstrey, Ottawa.

FINANCIAL STATEMENT OF THE EASTERN ONTARIO POULTRY ASSOCIATION.

For the Year Ending December 31st, 1904.

Receipts.		Expenditures.	
Cash on hand from previous year as per last report	$ 658 21	Cash paid for prizes	$1,470 50
Members' fees	103 00	Secretary's salary	200 00
Legislative Grant	1,000 00	Postage and stationery	2 75
Entry and Scoring Fees	553 05	Printing	43 50
Dominion Government Grant	42 00	Advertising	15 00
Poultry Sold, Selling Class	52 00	Judges and Clerks	143 25
Overp'd prize money refunded	50	Superintendent and Assistants at Show	131 00
Interest	13 70	Feed at Show	26 65
		Poultry sold, selling class	52 00
		Auditor	5 00
		Cash on hand	332 81
	$2,422 46		$2,422 46

Audited and found correct,
J. M. Duff, Auditor.

O. E. Culbert, President.
A. P. Westervelt, Treasurer.

MEMBERS EASTERN ONTARIO POULTRY ASSOCIATION AND VARIETIES EXHIBITED AT EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW, 1905.

Name and Address.	Variety.
Allen, Jos. S., Ottawa	Buff Orpingtons, A. O. V. Orpingtons, Bantams.
Allan, John O., Scotch Line	S. C. White Leghorns, S. C. Buff Leghorns.
Armstrong, Alva, Ottawa	Old Eng. Game.
Armstrong, J. L., Ottawa	Black Orpingtons.
Armstrong, A. A., Fergus	Langshans.
Annand, W J., Ottawa	A. O. V. Orpingtons, A. O. V. French.
Andrews, Fred A., London	White Plymouth Rocks.
Bastien, J. H., Rigaud, Que.	Game, Houdans, Hamburgs and Polands.
Brethour, J. E., Burford	Buff Wyandottes.
Brill, L. A., London	Black Minorcas, Bantams.
Bromley, Walter, Youville, Que.	Barred Plymouth Rocks, Buff Orpingtons.
Bradley, Geo. R., Carsonby	Turkeys.
Beckstead, F. W., Morrisburg	Barred Plymouth Rocks.
Benjamin, E. H., Ottawa	Game.
Bell, A. W., Toronto	Buff Cochins.
Belford, John A., Ottawa	Light Brahmas, Pigeons.
Blake, Fred. J., Almonte	Golden Wyandottes, Silver Wyandottes.
Belanger & Connors, Ottawa	White Leghorns.
Bullock, W. J., Gananoque	Black Minorcas.
Bristol, J. R. K., Ottawa	White Wyandottes.
Burrmount Pigeon Lofts, Ottawa	Pigeons.
Cockers, Jas. A., Cornwall	White Wyandottes, Silver Wyandottes.
Clark, H. H., Lennoxville, Que.	Buff Leghorns.
Carswell, W. P., Brockville	Andalusians.
Crouch, Thos. S., Billing's Bridge	Brahmas, Buff Plymouth Rocks, Game,
Code, Rich. N., Perth	White Leghorns.
Cumming, D., Russell	White Wyandottes. Brown Leghorns, Turkeys, Geese and Ducks.
Culbert, O. E. Ottawa	White Wyandottes.
Carleton, W. H., Ottawa	White Leghorns.
Devlin, C. J., Ottawa	Barred Plymouth Rocks.
Dewar Bros., Milton	Brown Leghorns.
Delary, Wm., Ottawa	Silver Wyandottes.
Dier, W. A., Ottawa	White Wyandottes.
Day, F. W., Ottawa	Pigeons.
Frith, E. R., Maxville	Black Minorcas and Pigeons.
Frith, S. W. D., Winchester	Rhode Island Reds and Orpingtons.
Fournier, R., Ottawa	White Wyandottes.
Fallis, R., Ottawa	White Wyandottes, Geese.
Fidler, J. E., Brockville	Barred Plymouth Rocks.
Gill, John I., Ottawa	White Leghorns.
Gunning, John, Sherbrook, Que.	Andalusians.
Graham, A. W., St. Thomas	Golden Wyandottes, Buff Wyandottes.
Gromoll, E., Ottawa	S. C. White Leghorns.
Garland & Gilchrist, Hintonburg	Langshans, Barred Plymouth Rocks, Silver Wyandottes, Black Minorcas.
Higman, Geo., Ottawa	White Wyandottes, Pigeons.
Hartnett, M., Ottawa	Black Minorcas.
Hellyer, A. W. E., Ottawa	Buff Orpingtons.
Hillman, Jas., East Angus, Que.	Black Red Bantams and Ryle Bantams.
Jolley, Edith M., Golden Lake	White Wyandottes.
James, F. A., Ottawa	Barred Plymouth Rocks, White Plymouth Rocks.
LaRose Chas., Cornwall	Light Brahmas, Black Cochins, Barred Plymouth Rocks, Game, Andalusians, Bantams.
Lambertus, J. A., Eganville	Barred Plymouth Rocks.
Laderoute, F. H., Ottawa	Buff Cochins, Bantams, Pigeons.
Levoux, F. O., Billing's Bridge	White Wyandottes, Ducks.
Lake, George, Ottawa	White Wyandottes.

MEMBERS OF EASTERN ONTARIO POULTRY ASSOCIATION.—Concluded.

Name and Address.	Variety.
Luxton, A. G. H., Milton West	Black Leghorns, Silver Grey Dorkings, Ducks, Turkeys and Geese.
McCabe, Thos. F., East Toronto	Buff Wyandottes.
McCurdy, R., London	Langshans.
McKinstry, R. E., Ottawa	Old English Game.
McGinnis, T. C., Iberville	Golden Wyandottes, Silver Wyandottes, Buff Wyandottes, White Wyandottes, Brown Leghorns, Silver Grey Dorkings.
McGurran, Jas., Ottawa	S. C. White Leghorns.
McNeil, Wm., London	Hamburgs, Polands and Bantams.
McInnis, G. A., Prescott	Black Minorcas, Bantams.
Morley, Jas., Milton	B. B. Red Game.
Maplewood Columbary, Toronto	Pigeons.
Montgomery, W. L., Gravel Hill	White Leghorns, Brown Leghorns, Black Minorcas.
Neate, M. C., Ottawa	Barred Plymouth Rocks, White Wyandotte.
Ottawa Poultry Yards, Ottawa	Langshans, Barred Pymouth Rocks, Buff Plymouth, Rhode Island Reds, Black Minorcas, Bantams.
Oke, R., London	Black Javas, Mottled Javas, Hamburgs, Bantams.
Osborne, W. M., Brockville	Leghorns, White Minorcas.
Pranschke, W., Ottawa East	White Leghorns.
W. J. Player, Galt	S. C. Brown Leghorns.
Pillar, W., Russell	Brown and Buff Leghorns.
Dr. Pritchard, North Wakefield, Que.	Light Brahmas, Game.
Pillar, Chesley, Russell	Langshans, Bantams.
Robertson, Robt. A., Billing's Bridge	Buff Plymouth Rocks, Buff Orpingtons, Ducks.
Rock Bros., Prescott	Bantams.
Reid, W. H., Kingston	Black Javas, Mottled Javas, Game, Dorkings, Bantams, Pigeons.
Rodier, Edmond, Montreal	Barred Plymouth Rocks, Wyandottes, Houdans, French.
Sage, L. C., London	Brahmas, Dark, Wyandottes.
Short, S., Ottawa	Barred Plymouth Rocks, Wyandottes.
Stewart & Son, Wm., Menie	Leghorns, Silver Grey Dorkings, Ducks.
Slessor & McCracken, London	Bantams.
Snelling, W. H., Ottawa	Light Brahmas.
Taylor, Chas. G., Perth	Bantams.
Telfer Bros., Milton West	Game.
Trinnel, Wm., Scarboro Junction	Silver Wyandottes.
Thorn, W. E., Morrisburg	Light Brahmas.
Thompson, A., Allan's Corners, Que.	Turkeys, Geese, Ducks.
Wales, F., Milton	Brahmas, Cochins, Plymouth Rocks, Wyandottes, Leghorns, Andalusians.
Warner, Harry, Ottawa	Golden Wyandottes.
Wright, Bowman, Domville	Cochins, Brahmas, Game, Leghorns, Hamburgs, Ducks, Langshans, Plymouth Rocks, Minorcas.
Warrington, J. H., Cornwall	Leghorns, Dorkings, Hamburgs, French Bantams.
Williams, J. H., Hintonburg	Buff Cochins.
Wright Bros., Brockville	White Wyandottes.
Watson, Jas. V., Perth	Black Minorcas.

The Provincial Winter Fair

PUBLIC MEETING.

The public meeting in connection with the Provincial Winter Fair was held in the City Hall, Guelph, on Wednesday evening, December 7. Many were unable to gain admission, as the hall, though a large one, was inadequate to hold all who presented themselves.

The musical programme, which was under the direction of Captain T. E. Robson, was much appreciated by the audience.

The Chair was taken at 8 o'clock by Hon. John Dryden, Minister of Agriculture. The Chairman presented his Worship the Mayor of Guelph, who on behalf of the citizens, welcomed the members of the Live Stock Associations, Farmers' Institutes, and others who had come to the city in order to be present at the Ontario Winter Fair. Mr. G. B. Ryan, President of the Board of Trade, in an appropriate address, heartily confirmed the welcome of the Mayor, Mr. John Hamilton.

In response, the Chairman, on behalf of those present thanked the gentlemen who had spoken, and assured them that the good will of the citizens, and the interest of the business men represented by Mr. Ryan, would do much to promote the success of their gatherings.

The programme was then proceeded with by calling on Dr. Jas. W. Robertson for an address.

ADDRESS.

By Dr. James W. Robertson, Commissioner of Agriculture, Ottawa.

I have not forgotten the old city of Guelph, nor the old days at the O. A. C., but I have hardly been able to keep count of the many good things that have happened to both, since my fortune, good or bad, took me from this city to the capital of our Dominion. In those good old days Mr. Dryden, (the chairman to-night) and I travelled together addressing Farmers' Institutes; and sometimes we had an audience of only twelve men and two or three boys. The times have changed. I congratulate the Province on this most magnificent gathering on this great occasion—The Provincial Winter Fair. This Fair is a great success in the number and quality of its exhibits, and in the crowds who come, some to be entertained, more to be informed or to be in some measure educated. The growth of this Fair has been chiefly in connection with its educational features. A good many people in Canada have the notion that everything educational is comprised in books or contained in the school house or Colleges. We are outliving that superstition and are beginning to learn that every experience that makes for increase of intelligence, ability, and goodwill is an educational experience of high order. All education worthy of the name is of that order. We have followed too long the fetish that education comes only or chiefly from books. Those who visit the Fair come here to see. That is the first step in education. They

investigate and then go home to do. Seeing and doing constitute progress in education and in life; nothing else counts. We see with the mind's eye as well as with the body organs of sight and we do by the intellect and spirit more than by the hands and feet. I congratulate the people of Ontario on having this fine educational fair. The Fair owes much to a few men, and it owes much to many men. To name them all is out of the question, but there are two or three I should like to mention in connection with the progress and improvement of this Fair. First, Hon. John Dryden, Minister of Agriculture for this Province. I have known him more or less intimately for many years and I have observed the secrets of his success, not merely as a man and a farmer, but as a public servant, as Minister of Agriculture, adding honor and lustre to that office as Minister of the Crown and servant of the farmers. Largely and wisely and honorably has he dealt with great affairs. I have found that he has an abiding faith not merely in the soil, climate, and material resources of this Province but in its people and in their future. He has shown a statesman's love for its people, young and old. If you have these characters embodied in a capable man, you must have large and valuable service such as Mr. Dryden has rendered. Consequently he holds a high place in the affections of the people.

I must not pass without mentioning Mr. F. W. Hodson, the Live Stock Commissioner for Canada, and Mr. Westervelt the tireless and indefatigable Secretary. There are others by the dozen and score who have labored in less prominent ways to make this Fair and all its agencies render you service.

Fruitful Progress.

The live stock interests of this Province are very important and meetings such as you have in connection with this Fair bring out a great deal of information regarding live stock. Somehow a great deal of this information falls upon stony ground or among thorns or by the wayside, and little of it gets into good ground and brings forth fruit. Why is this? Because all information is inert unless it finds something in the man that enables him to adapt it to his own circumstances and realize it in practice. If you would have the information become valuable, every man must do something with it.

In the progress of the movement for the improvement of live stock in Ontario where do you find the main evidences of success? Mostly I think in the division of live stock that deals with swine. That is where farmers have made more progress in improving the quality of the individual animal and in managing the animal with profit than in any other. In that branch alone the products of this Dominion have grown with an export value of one and three quarters million dollars ($1,830,368) in 1893 to between fifteen and sixteen millions ($15,455,174) in 1903. Why have we been able to accomplish this? Because men have gathered up from all sources, a knowledge of the principles that govern proper management, feeding, marketing, etc., and because the *talents* of men in the great commercial interests have put the products on the market at the right time and in the best possible condition. Would not the same means do as much for other products? We get carried away too often at live stock meetings by discussions that are mere repetitions of what has been said for forty years. Consequently people say, "That is an old story; the man has an axe to grind," and there is no progress in intelligence or ability or co-operation. We look at the live stock interests as represented in the agricultural publications of the Province, or as discussed at public meetings, and as represented at the great Fairs of the Province, where the leading breeders are always in evidence, and are apt to fall into the error

of supposing that the general average of our live stock is higher than it really is. Let us examine more closely into this matter. Take horses as an example: We find that there is but one pure-bred horse in Ontario for every 162 others. In cattle there is but one pure-bred animal for every 60 others; in sheep there is one pure-bred to 30 others; in swine one to 60.

I have no hesitation in saying that you can magnify too much the value to the Province of these pure breeds of live stock, unless the best use is made of the herds and flocks, of their management and of the information given to farmers regarding them.

In the management of stock; why is it that men who have lots of money and good pure-bred stock have not buildings and accommodation which an ordinary farmer could copy and not waste time, manure and feed, in so doing? Men who go to these farms to see pure-bred stock expect to see there what they can copy to advantage, not merely in the buildings but also in the equipment and management. For some time I have been endeavoring to find the best plan for a set of out-buildings for a dairy farm, and I have not found anything to suit me. We require buildings that will maintain the animals in a good condition of health and comfort, and at the same time are so conveniently arranged as to economize labor, feed, and manure. In order to obtain plans of this description, I am willing to give $100 for the best plan of out-buildings for a dairy farm, $75 for the second best, $50 for the third best, and $25 for the fourth. I will make the same offer for plans of out-buildings suitable for a farm where beef raising is carried on. The plans need not be elaborate. The mere style of drafting will not count, but the best ideas will, having in view the points mentioned.

More in Handling than Producing.

We have made progress in Canada in handling the products of animals, in transporting the products of the farms and in marketing them. At the time I first came to the Agricultural College in 1886 the value of the exports of agricultural and animal products of the Dominion amounted to less than $40,000,000. There was growth to $50,591,002 in ten years. Since 1896 the growth has been from $50,000,000 to over $100,000,000 for the year ending in June, 1904. In butter exports alone there was an increase in the last seven years from $1,052,089 to $6,954,618. I give these figures to suggest that the same means that have been successful in increasing the value of these products by the better method of handling, transportation and marketing can be applied with equally good results to the live stock and the live stock products, by making suitable areas of this Province carry more live stock, and the stock itself bring a better price per head and give a larger profit.

An Instance from Ontario.

Not many weeks ago I visited a 110 acre farm in this Province. The average size of farms in Ontario is 115 acres. Ten years ago the annual gross revenue from that farm was $800, and $50 per year was paid in wages. In 1903 the same farm had a gross revenue of $4,486, employed seven persons, and left a profit after all expenses had been paid of $1,700. In 1904 the result was rather better. These results were obtained on a farm not close to a great market, 70 miles from Toronto, with cream, swine and poultry as the chief products. That had been accomplished by one man's skill, intelligence on an ordinary farm, not an exceptionally good one. Consider what it meant in increased population upon the farm, seven as against one man; and in the increased wealth in and from that land and its possibilities. Consider what

it would mean if that could be accomplished on many of the 185,000 farms of this Province. I do not know of any farm in Manitoba that comes near that record for 110 acres. I have nothing but praise for Manitoba and the West, but I do say that Ontario farmers ought to make more of their land and more of themselves, and then most of their boys and girls would stay here, and that would be for the good of the whole Dominion.

Farmers' Testing Associations in Denmark.

There has been hardly any attention in Canada paid by the general farmer to the systematic breeding of dairy cows. There has been a lot of talk about thoroughbreds, and people have been bolstering up names, by lists of prizes at shows and such like, and others have been led by the use of these names into doing things that do not pay. Let me give you an instance of a more excellent way. Over in Denmark—where they have had, I think, the best common school system in the world, a common school education which has done a great deal for the benefit of the farmers—they have formed small co-operative testing associations among the farmers for a definite purpose. These small co-operative testing associations have been striving to do four things. First of all let me tell you what one of these small co-operative associations is like. Often they are limited in membership to twelve men in the locality. Three directors are appointed by the association, and of these, one retires every year, so that each holds office for three years. They undertake to do four things for themselves, and by themselves, with some government help in the form of a grant of a little money to help pay expenses. They first of all undertake to find out how much is the cost for feed per cow in their own herds, by once in a while getting, by weight or measure and calculation, a rough business estimate of the cost of food per cow or per herd. Then they have the milk of each cow weighed once a week; this is not done every day, because to do so would involve too much labour. Then the milk is tested as to quality often enough in the season to show what percentage of fat is applicable for the whole year, say once a fortnight or once a month. That is quite close enough for practical purposes. Then they make a statement showing the relation of the cost of the feed consumed to the value of the product. We do not do that in Canada, except perhaps in one herd in a thousand, and it is a mistake that we do not. Nobody can run any business successfully unless he keeps books or unless he knows the relation of the cost of production to the price received for the product. Let me give you one instance of what they have done in Denmark by one of these testing associations. They have now over 250 of these testing associations in that kingdom. Here is the result of a typical one for the last three years: The increased yield of milk per cow in their herds from 1899 to 1902, was an average of 942 pounds of milk per cow, per annum, being an increase of 18 per cent. in that period. The yield was increased from 5,162 pounds of milk per cow in 1899-1900, to 6,104 pounds of milk per cow in 1901-1902. There was an increase in butter of 47 pounds per cow, or 24 per cent. in the three years. These are marvellous results to be attained in three years, especially when we find that meanwhile there was a reduction in the cost of food, by the farmers learning the effects, the best value to be found from the feed and the best way of balancing the rations. If you can get both an increase in the quantity of milk per cow and an improvement in the quality, as they have in the case I have cited, and at the same time effect a reduction in the cost of production, you are on the right lines for a tremendous increase in the profits of the business. That is what they are doing in Denmark.

Improvement in Rural Schools.

I am concerned in the progress of the people of this Province in every educational sense that I can perceive. Some people have the notion that the thought and labor that I have been giving to the question of improving the rural schools is somehow a little hostile to the financial interests of the farmers. They say, you will make it so that the education of a boy costs his father twice as much for his school education as he does at present. If a man with all the money he needs for comfort and luxury denies his children the best school the country can offer, it is a misfortune that such a man should have children. The good Lord will hold him responsible not for the money he leaves or the cows he owns, not for the land in his name, but for the training and character of his children. The whole cost of the public elementary schools in Ontario for children in rural districts is about $3,000,000 per annum. The value of the beef, the bacon and pork and cheese from Ontario farms has risen from $31,000,000 in 1896 to $65,500,000, in 1903. The increase in the animal value of these products alone is $34,500,000, or more than ten times the whole cost of the public elementary schools in rural districts. According to Mr. C. C. James, the value of farm buildings in Ontario has risen from $206,000,000 in 1897 to $248,000,000 in 1903. Supposing it should cost $15,000 to put up a consolidated school building such as would give the children in any rural district educational opportunities equal with those furnished by the new Macdonald consolidated school on the Ontario Agricultural grounds, is that beyond the reach of five or six rich school sections?

The increase in the value of farm buildings in Ontario, according to figures furnished by Mr. James (and I know of no better authority), amounts to $42,000,000 during the last six years. If only one dollar had been applied to the erection and equipment of school buildings for every twenty-eight dollars applied to new farm buildings, that amount would have built one hundred fine consolidated schools in six years.

With the exception of a few leading localities, the rural school buildings of this province are not creditable to the people. They are often the ugliest buildings in the neighborhood. Frequently the fences make even the ill-kept grounds look worse, from their dilapidated condition. Seldom has any attempt been made to plant trees or to care for either shrubs or flowers. The school premises do not compare favorably with the farm houses or even with the stables, considering the uses of the different classes of buildings; yet the children in the country districts spend the greater part of their time at those school premises—they might fittingly be called "the children's houses"—and that at the most plastic period of their development.

We must not consider the school question or the improvement of education in rural districts from the standpoint of expense at the schools alone. Ignorance is costly; want of ability is perhaps more so; and want of intelligent co-operation among the people for their own good is perhaps most costly of all. There can be no great advance in agriculture—an interest in which Canada is most strongly, most vitally concerned—except by education, and no permanent improvement in education in the rural schools except by consolidation of large numbers of rural schools. The two are inseparably linked together. Agriculture needs better schools, and better schools can be obtained by means of consolidation. There are obstacles and difficulties in sight, but the end to be gained is greater than any hindrances that may loom up in the way. Even if the better schools should cost more, surely an intelligent and wealthy people will not grudge when it is wholly for the benefit of

their children. If the school taxes do go up, they will go up for the payment of higher salaries to better teachers, for the providing of better opportunities in every way for the education of the rising generation. Perhaps there can hardly be a better evidence of the intelligence and advanced civilization among a people than when they vote to increase their own taxes for the sake of their own and other people's children. All that will help to make the Province a place more desirable to live in and the people more prosperous, contented and happy, by progress in education—by progress in ability, in intelligence and in good-will and co-operation.

ADDRESS.

By C. C. James, Ontario Deputy Minister of Agriculture.

The world has discovered that there is such a place as Canada, and what is more important, the people of Canada are discovering that they have a great country. We are beginning to have a higher opinion of the country we live in, and our faith in it and in our ability to develop it is growing also. This idea is spreading abroad to such an extent that many of our friends in the United States are beginning to admit that the opportunities to the north of the line are better after all than the opportunities that exist to the south. We welcome them all because we expect that they will be as loyal to the new country of their adoption as they were to the country of their birth.

The present condition of Canada may be said to resemble the condition of the boy who is just growing into manhood. Perhaps he has an idea that he is going to be a great man. I trust we shall not become too conceited as a country, and imagine that we can do much greater things than are possible for us; but if we are to accomplish anything, we must first of all have faith in our own ability.

What is it that is advertising this country all over the world? The vast wheat fields of the great West. The world has discovered that the prairie country of the west is the greatest wheat producing country to be found anywhere. The countries of the old world are realizing that if given the chance, we can feed them with our wheat.

So important has this question become that the millers in Minnesota are now asking their Government to take down the tariff wall, which the Americans themselves built up, in order that Canadian wheat may be imported for their great mills to be ground into flour. I suppose we may leave the question for them to settle. The point I want to make is that the wheat and other resources of the North West have begun to attract the attention of the world. People are talking of Canada, and saying "that is the future granary of the British Empire"; and that from Canada will come the flour that is to feed the people of the old lands.

The resources of our North West may well arouse in us a great admiration for our country. A development is now taking place there which has been equalled only once before in the history of the world, and that was when the Western States of the Union were peopled. We find that the statesmen at Ottawa are willing to spend one hundred millions if needs be to carry great railroads into that country in order that it may be developed and the wheat brought out. We find that a complete immigration system has been organized in the countries of Europe to bring in farmers to settle on the land, and farm help to assist the settlers to grow their wheat. The truth that is permeating our press and finding a place in the minds of our statesmen is that the future of Canada is wrapped up in the development of the North West.

I should be the last to discourage these movements or to decry the wonderful resources of our country, but at the same time I desire to point out that the resources of the Dominion are not confined to Manitoba and the North West. We are spending millions upon millions to open up that country, and what are we doing for Ontario? You say the possibilities are not as great here as there. Are they not? Can Manitoba or the North West show a greater development than we have experienced here during the last six or seven years? For the four year period 1896-99, the farmers of this Province produced beef, bacon, and cheese to the value of $147,000,000. For the four year period 1900-03 the value of the same products reached $220,000,000, an increase of $73,000,000 over the previous four years. We have been growing steadily, and an industry that can add $73,000,000 to its output in four years, along these lines of production, is worthy of the most careful consideration of every man who has the interests of his country at heart. There has been no development in the North West, important as that country is, that can compare with this. As Professor Robertson has said, as others have said, and as you well know, we have only begun to develop the industry in Ontario. If our faith in this country and its development is such that we are willing to spend millions of dollars to assist in settling and opening up the North West, we ought not to be niggardly when we come to consider the development of Agriculture in Ontario. Here we have possibilities for development which cannot be surpassed by any other Province; and what I say about Ontario applies also to large sections of the other older provinces. While we consider Canada as great in her possibilities so far as her undeveloped lands are concerned, we should not overlook the possibilities for developing that which is close to us. We are apt sometimes to think that far away fields are greener than those near at hand; that we can succeed better in Manitoba or the North West than here; that there is another place where the sun shines brighter and the air is clearer than it is here. Let us remember that there is no other section where the possibilities of agriculture are as great as they are right here at home. We have between one hundred and seventy-five and two hundred thousand farmers in this Province; taking in the man who cultivates a small lot for the production of fruit and vegetables, it would not be over-estimating to say that we have 200,000 persons engaged in this industry. Every $10 added to the value of the annual output of each farm in Ontario would increase the total revenue from this source by $2,000,000 a year; every $100 added means a total addition of $20,000,000 per annum. It would not take a very great improvement in the agricultural production and in agricultural methods to add an average of $100 a year to the value of the output of the farms of this province. That would be only a beginning. The task we have before us is to add not merely hundreds of thousands but many millions to the annual production of this Province. How are we to do it? We have that great educational movement to which Professor Robertson has referred, which begins at the bottom of things; we have numerous organizations such as those represented at this gathering for the benefit of the more mature people concerned in these industries. All these will help in the direction sought.

The point above all others that I want to leave with you is this, that, in the consideration of the growth, progress, and the future of the Dominion, while giving proper consideration to the claims of other Provinces, we should not forget that the possibility exists to a greater degree right here in this Province to add wealth to the Dominion than will be found anywhere else in Canada.

In the language of the boy in the street we may say, "What's the matter with Ontario? Ontario is all right."

LECTURES ON PRACTICAL SUBJECTS DELIVERED IN THE LECTURE ROOM IN THE WINTER FAIR BUILDING, GUELPH.

A MODERN POULTRY HOUSE FOR THE FARMER.

By F. C. Elford, Chief of Poultry Division, Ottawa.

I intend to discuss the subject of my address under the following headings: First, the need for a poultry house, second, the location, third, the essentials of the poultry house, and fourth, illustrations.

Is there any need for a poultry house on the farm? A good many farmers will admit that poultry will do better if taken care of, but, they say, there is not enough money in poultry to warrant that care. This, I assert is not true, for in my opinion there is no adjunct to the farm that pays as well. Statistics of 1903 show that for every dollar invested in land there is a revenue through the crops produced of 20 cents; every dollar invested in dairy cattle gives a revenue of $1, but every dollar invested in poultry gives a revenue of $2. This will indicate approximately, the value of poultry to the farmer.

Many farmers claim that it is too much work to clean out the poultry house as often as they clean out their stable, and that it takes too long. I admit that some farmers take from six to twelve months to clean the poultry house, and even then it is not properly done. The reason why a good poultry house is necessary is that if we want poultry to pay we must keep them healthy, and to accomplish that a comfortable house is required. It need not be expensive, but if it makes the poultry comfortable during the winter season it will do all that we ask of it.

The demand for poultry products for at least six months of the year is in excess of the supply. A commission man in Toronto told me the other day that he was asked by one hotel if he could supply 15 tons of poultry for table use, but he could not get it. Five years ago, he said, that hotel would not have taken one ton. I know another man in Toronto who could have had an order last year of ten car loads of dressed poultry for the Northwest if he could have supplied it.

As to the location of the poultry house, if a trade in fresh eggs is contemplated, it would be best to have the plant near the market. But the majority already have their poultry plant located on their farm, or else contemplate locating it there. The first essential in locating a poultry house is a dry site. Have it on well-drained soil, and if possible on a slope facing the south or southeast so as to secure the maximum of sunlight. Do not select poor land that will not produce anything. I would rather have half an acre of run that will grow a good crop of lucerne that the poultry can eat, than five acres of desert that will grow nothing. The run should also have some shade in the way of trees. Fruit trees and poultry made a good combination.

Locate with a View to Convenience and Growth.

As to the essentials of a poultry house—a good house is necessary. I do not mean an expensive poultry house, but one of ordinary cheap construction that will make the birds comfortable. The first essential is plenty of sunlight and ventilation to make it warm, and comfortable and sanitary. The sun should touch every square foot of floor sometime during the day. By ventilation I do not mean that the air should be let in through chinks in the wall as drafts are injurious to poultry; but the house should be thoroughly aired every day by means of windows. The windows should be opened long enough every day to thoroughly change the air in the house, no matter how cold the weather may be.

The next essential is that everything should be movable including the roosts, drop boards, nests, etc., so that they may be thoroughly cleaned from time to time.

The poultry house must also be warm and comfortable. The objection to many poultry houses is that they are too warm at one time during the day when the sun is shining and the hens get heated by exercise, while at night they are much too cold. The temperature should be as nearly even as possible during the twenty-four hours, and a warm roosting pen should be provided shut off in some way from the rest of the pen.

The following plans may be taken as guides in the construction of a poultry house. I do not claim that any of them is perfect, or that any one of them will necessarily suit your requirements—to suit you, it must suit your conditions and your purse,—but I claim there are many points in them which you will be able to adopt with advantage in building your own. They are plans of up-to-date poultry houses that have been giving the best results in Ontario.

The double poultry house has been built at a number of the Department's illustration stations. It has a skylight for every two pens, and it has a warm roosting pen at one end. The partition is an objection, and if in its place we had something that could be entirely removed so as to allow the sun to shine into the roosting quarters, it would be an advantage. Another objection is that the hens do not get the use of part of the inside room for scratching purposes. Still it is not lost room as it is warmer there in winter and cooler in summer than the rest of the pen. Its size is 80 ft. x 16 ft. and it will accommodate from 150 to 200 hens. The cost of building it varies according to local conditions. It will probably cost from $4 to $5 per running foot.

Q. What are proper night and day temperatures?

A. It would depend somewhat on the breed of fowl.

Mr. Graham: In my experience chickens will stand a temperature of 10 degrees above zero if they are educated to it, but if they are accustomed to a warm building, they will not stand more than 7 or 8 degrees of frost.

Mr. Elford: The single house, No. 4, is practically the same as the one already described, but in place of a partition there is simply a curtain attached to a frame, which is let down on cold nights.

The Baldwin house—No. 5—is one that has given splendid satisfaction, but it is rather expensive, costing from $3 to $4 per running foot.

The Bedford house—No. 7—costs one dollar per running foot. It is single boarded except at the back of the roost, where it is double.

Q. What is used for roofing material.

Mr. Elford: A felt roofing material.

The Clark house—No. 6—is a comparatively cheap structure costing $2 per running foot. It has a cotton screen for the windows which may be let down.

Q. Will the cheaper houses give as good results as regards the hens laying as the more expensive ones?

Mr. Elford: I think a hen will lay well if she is comfortable and has good management.

Q. How thick should the wall be in your opinion?

Mr. Elford: In the buildings illustrated some have three thicknesses of lumber and two of tar paper; others have only two thickneses, and success is claimed for both.

Q. Do you let poultry out in the winter time?

A. Yes, all they care to go.

Q. Where do you feed them?

A. In the scratching pen.

Q. Have these houses earth floors?

A. Yes, but I know of cement floors that give satisfaction, but there should be plenty of litter or gravel on top.

Q. Will concrete make a good wall?

A. It would be rather expensive for a hen house.

Q. Would it not be a little cold?

A. I should think it might.

Q. I have a house with walls of concrete and it is not at all satisfactory.

Mr. Hodson: I think it would be better to keep to boards.

A POULTRY HOUSE.

By J. W. Clark, Cainsville.

If a person intends to be successful in poultry raising, he should have suitable buildings, not necessarily expensive ones, but good comfortable houses cheaply constructed. I claim my poultry houses fill these conditions. I studied the matter thoroughly before building. I wanted a house that could be kept clean and dry. One warm enough to keep the birds from getting chilled when the thermometer is below zero.

The first essential is a good location, a piece of land that is dry; where the water will not stand for any length of time. It should be located where the birds can get plenty of shade during the hot months; a small fruit orchard answers well. The building should face the south. A good foundation is also important. I prefer cement for this purpose; a trench two feet deep by eight feet wide, with 12 in. cobble stone to act as a drain. The cement wall is 6 in. above ground. A wall of this kind keeps out wind, also skunks, weasles, and rats and many other enemies of poultry. My buildings are 60 ft. long x 4 ft. 10 in. in height at back, 8 ft. at front side, and 13 ft. wide.

I purchased 2x4x12 ft. hemlock for studding. This cut into answered for back and front side. For roof I purchased same grade 2x4x14 ft. scantling. The studding was set up 2 ft. apart all over the building. On this I put good sheeting, costing $13.00 per thousand feet, selecting out the best boards for the roof. On this was put two thicknesses of building paper, which cost about $1.00 for the whole building.

For siding I procured cull shingles costing $1.00 per thousand, and laid 5 in. to weather. The cost would be 75 cents. per 100 square feet. For roofing I used Mica roofing costing $2.25 per 100 square feet. This is water proof and much better for flat roofs; can be quickly laid and is very desirable if properly finished.

My whole building is plastered inside with one coat. I found this could be done much cheaper than putting on dressed lumber. It required about $6.00 worth of laths, lime and sand, cost $3.00. The mixing and putting on cost $6.00.

My object in plastering was to prevent cracks, which harbor vermin, and it is very difficult to get lice out of cracks in wood work. With a spray pump you can whitewash thoroughly all the interior and have it perfectly clean and bright.

Q. Can you treat dressed lumber in this way?

A. No; whitewash would not stick to dressed lumber; it would pull off. My windows run directly up to the plate on front side of building, so that the sunlight can reach all parts of the pen during the winter when the sun is low in the heavens.

The roosts are at the back of the pen, which is divided into spaces of 12 ft. Dropping boards run full length of pen. A partition is placed at the end of perches, which are 8 ft. long, leaving 4 ft. for a pen in which to shut male birds or setting hens. The dropping boards are three feet from floor up. The nests are arranged under male or setting hens' pen.

Q. How large are your windows?

A. Six feet long by 40 in. wide leaving a space of 1 ft. at bottom of window to sill. One of my buildings has an incubator room at one end, the other a feed room.

WINTER EGG PRODUCTION.

By W. R. Graham, Manager Poultry Department, O.A.C., Guelph.

The main essentials to winter egg production are as follows: Good stock, comfortable quarters, proper food, reasonable exercise, cleanliness, and favorable weather.

As to stock for winter egg production, April and May hatched pullets will give the best results. If they have been well fed during the summer, they are almost sure to lay in December, January and February, if properly managed. As to breed, I regard Wyandottes, Rocks, Orpingtons and the American breeds as the best. The question of early moulting must be considered. Whether it pays to have hens moult in July or August depends on the local conditions, on the price of eggs in the fall, and on the cost of production in summer as compared with winter. The moulting season may be controlled in this way: Give the hens you desire to moult one third of the amount of food they have been accustomed to receive and you will stop egg production. After that treatment has continued for about two weeks, feed them well, and they will either lay better than ever before or they will moult. Seventy-five per cent. will moult under this treatment.

Most people do not appreciate the difference in the individuality of their hens. The hen that is thrifty, vigorous and full of vim—the business hen—

is the kind you should select. A great deal depends upon the strain. I can give you strains of Plymouth Rocks which I can almost guarantee not to set; other strains I can guarantee to set frequently. If you have a family of admirable egg producers, place a male of that strain in your flock, and the egg production will be increased in his progeny. Ability to produce eggs or to produce flesh can be bred in poultry just as surely as the ability to produce milk or beef can be developed in live stock by careful breeding and selection.

Poultry houses have already been pretty fully discussed. We have four experimental houses, a warm, a cold and an intermediate house. We purpose experimenting with these for five years, and at the end of that time we shall be able to tell what is best for winter egg production.

It is said that "feed is half the breed," but in my opinion the breed is the big half. Still it is essential to know what to feed hens for egg production. Wheat is the best egg producing food among the grains, but it is doubtful whether it can be fed with profit at present prices. In the ration we should have grain, vegetable food, meat food and water. In grains, we have found that a ration of equal parts of wheat, barley and oats to be very satisfactory, but the oats should be a thin hulled variety. Corn is a good food in cold weather for Leghorns, but it is not good for breeds of chickens that tend to put on flesh early. Vegetable foods I would place in the following order: Mangels, cabbage, turnips, sugar beets. The best way to feed roots is to stick a mangel on a nail in the wall, as they will then eat practically the whole of it.

We feed about 2 lbs. of whole grain at 9 a.m., burying it in six to twelve inches of straw litter, placing the grain first and the straw on top, so as to give the birds exercise. At the same time we open wide all the windows so as to admit the fresh air. We follow this with a feed of either barley or meat, and we always give roots. We usually feed meat three times per week. Sometimes we feed them bread and milk by way of variety. We keep beef scrap constantly in front of them. This is a by-product of the abattoir, procured from Swift and Co. of Chicago. In addition to this we give them one pound of meat three times a week. Beef scrap is one of the strongest nitrogenous foods we have. At night we give them whole grain or a mash.

Q. Do you feed clover?

Mr. Graham: I feed steeped clover leaves in a mash.

Q. Do you feed the mash warm?

A. Just warm. I do not think it is essential to feed a mash, but sometimes it is a convenient form in which to present a ration. The meat food may consist of waste from the kitchen or slaughter house, or blood meal or animal meal may be used depending on circumstances. Beef heads at 20c each form a reasonably cheap meat food. They should however be boiled or ground in the bone mill, and if for grinding should first be frozen hard and the teeth extracted.

Q. Will milk take the place of meat?

A. It will in summer, but it does not give good results in winter. It contains so much water as to lower the heat of the body.

If you wish to secure winter eggs, you must pay attention to keeping the poultry house clean. If you cannot clean the dropping boards once a day, clean them once a week, and throw some ashes on them. White-wash either with a broom or a spray-pump, and choose a dry time for the operation, or it will take a long time to dry, and the dampness is apt to give the chickens roup. To kill lice on the hens, sulphur and insect powder is a good remedy.

Go over the pens once in every two or three weeks with a mixture of coal oil and carbolic acid, in the proportion of one pint of acid to a gallon of oil.

A reasonable amount of exercise is necessary to keep the hens in good condition. Two hours per day, picking over the straw, will be found to be sufficient. There is a difference between exercise and work; what is exercise for the Leghorn will be work for the Brahma. Do not use up the food you give them by making them work too hard, but on the other hand, do not allow them to become too fat.

Q. In feeding liver, lights, etc., do you cook these foods?

A. Yes, for the reason that there is far less danger of disease when cooked. It is necessary to give hens egg-shell material in winter time, and there is nothing better than egg shells when they can be obtained, as they usually can be from a hotel. This is one of the best cures of egg-eating.

G. R. Cottrelle, Milton: In most poultry houses on the farm, the roosts are built step fashion. This is the worst kind of roost for the reason that it is a natural characteristic of the hen to climb to the top, and in such cases the top roosts are always overcrowded. This results in overheating and chills follow. The roosts should therefore always be on the same level. Where there is a drop curtain in front of the roost, it is my practice to have it extend right to the roof. Do you think that is desirable, Mr. Graham?

Mr. Graham: The question of curtain or no curtain is a debatable one. I incline to the opinion that a curtain is apt to make the roost too warm at night.

Mr. Cottrelle: I believe in fresh air for poultry, but at the same time the birds must be brought up to it and accustomed to it gradually as the weather gets colder in the fall. Sometimes farmers being impressed with the importance of fresh air for poultry through listening to an address at the Farmers' Institute meeting or elsewhere, suddenly revolutionize the treatment of their poultry in this regard, and the birds take cold as a result.

In the average flock of poultry on the farm, there are far too many varieties. You cannot secure good results in winter egg production under such conditions. The characteristics of your fowls should be as uniform as possible, no matter for what purpose they are kept. Treatment and food that will place one breed in the proper condition for laying, may have quite a different effect on another breed, and it is therefore important that one breed only should be kept.

RESULTS OF POULTRY EXPERIMENTS IN 1904.

By W. R. Graham, Manager Poultry Department, O.A.C., Guelph.

We have been continuing our experiments during 1904 with the view of discovering a good substitute for skim milk in the fattening of chickens. We have experimented with beef scrap, animal meal and blood meal, but have found nothing superior to milk for the production of white-fleshed birds. Beef scrap makes a good ration but is rather too expensive, costing about $3.25 per cwt. Animal meal costs $2 per cwt. and gives very good results. Last year we had difficulty in getting the birds to eat the blood meal ration, but this year they appeared to relish it as well as any other, and I am inclined to think that it varies in palatability, and the lighter colored meal giving the

best result in this respect. The following table will give the results in fattening chickens according to age:

Ration.	No of Birds.	Weight at Beginning of Experiment.	Pounds of Gain in two weeks.	Pounds of Grain Consumed.	Cost of Grain.	Pounds of Grain to Make 1 Pound of Gain.	Pounds of Milk Consumed.	Cost of Milk at 10c. cwt.	Pounds of Skim-milk Substitute.	Cost of Substitute.	Total Cost.	Cost of One Pound Gain.
Grain and Milk	12	58	10	47	58	4.7	50	5	..	..	63	6.3
	12	35	16.5	47.75	60	2.9	50	5	..	..	65	4
Grain and Animal Meal	12	55	9	47	58	5.22	..	..	7	14	72	8
	12	43	12	48	60	4	..	..	7	14	74	6.16
Grain and Beef Scrap	12	57	11	47	58	4.27	..	..	7	22	80	7.27
	12	40	15.5	48	60	3.09	..	..	7	22	82	5.9
Grain and Blood Meal	12	54	12	47	58	3.9	..	..	7	19	77	6.4

We conducted an experiment with 30 birds with the idea of testing the value of sprouted grain. We tested a variety of grains, and found the best ration for the purpose to consist of wheat, barley and oats. From this ration we secured 18 lbs. of gain in two weeks from 12 birds. Sprouted food is relished by all classes of chickens, and its chief gain is in its palatability. We experienced no difficulty in getting fowls to eat large quantities of sprouted oats or barley. Sprouted grain also acts more or less as a green food. Other than this, I cannot say that sprouted grain is any better than ground grain.

Q. Do you feed it with milk?

Mr. GRAHAM: Sometimes with milk; also with water and animal meal, blood meal or tankage. Sprouting takes quite a lot of time, and also a lot of water to run the machine.

Q. Do you recommend boiling the food?

A. Occasionally boiled food will give good results, but not an exclusively boiled ration.

ECONOMICAL MILK PRODUCTION.

By J. S. WOODWARD, LOCKPORT, N. Y.

My subject does not mean the production of cheap milk, but the cheap production of good milk. When a man goes into any business, he should choose the appliances best suited to his purpose. If we are to produce milk economically, first we must choose an animal capable of producing milk and producing it cheaply. We should not expect to produce the best and cheapest milk by taking an animal that had been taught by long selection and feed-

ing to produce something other than milk. But rather one that had been bred and fed with the one idea of turning food into milk.

Even the best dairymen do not appreciate what a remarkable animal they have in the dairy cow. As an example of what a cow will produce if she is bred right, I will instance the record of Queen Peitertje Mercedes, a cow that is taking part in the dairy test at this show. This cow weighed before dropping her calf 1,600 lbs., and in 30 days after calving produced 1,983 lbs. of milk, or 383 lbs. more than her own weight. That, according to Professor Atwater is equal to 471 lbs. of boneless flesh. Each day that cow produced the equivalent of over 15 lbs. of bone free flesh. You will see by this what a peculiar organization such an animal must have. The dairy cow has a high strung nervous organism, which is the exact opposite of the lazy, fat, beef animal.

Having secured the right kind of cow, you must give her the best possible care. She should be so circumstanced that she will expend the smallest amount of food possible in the maintenance of her own existence.

We know that four-fifths of all the cow eats is used to keep her warm, even under the best conditions. We might keep our cows under such unfavorable conditions that it would be impossible for them to eat food enough to keep themselves warm, leaving nothing for the production of milk. Warm comfortable quarters are therefore necessary. By that I do not mean, dark, damp, ill-ventilated stables by any means. Besides being warm, the stables should be sanitary, and properly ventilated. I like to have the temperature of the cow stable between fifty and sixty degrees. I ventilate by means of shutes extending up through the roof, three feet square, with cowls at the top.

I do not believe in exercise for cows. If you turn your cows out on a cold morning, they must keep themselves warm, and every step they take in the effort to do so is at your expense. When my cows go into the stable in the fall, they stay there till spring, and they are healthy, happy and satisfactorily productive.

I do not believe in stanchions for cows. I do not believe that a cow can be comfortable under such conditions, and it is necessary that she should be comfortable if she is to produce milk cheaply. Comfort has a money value to the milk producer.

The next point is proper feeding. For a man to eat more than is necessary is gluttony, which is a sin; but for a cow to eat more than is necessary to maintain her, is a virtue. We want her to eat all she can assimilate and put it in the milk pail. This is accomplished, first, by giving her food that is adapted to the production of milk. You cannot give her a ration that would fatten a beef animal and expect her to produce the maximum amount of milk. The ration must be properly balanced having in view the production of milk. The ration should contain a certain amount of protein to produce the casein of the milk, and a certain amount of carbo-hydrates to supply the fat constituents. Then, it must be palatable, which assists digestion. Thousands of farmers expect their cows to make butter on nothing but straw. While plenty of roughage is necessary there must be plenty of concentrated food to go with it, and they also require succulent food, which is so much more easily digested than any dry food. The chemist says when we cure hay we take nothing out of it but water; that if we take apples and dry them, they lose nothing but water. But everyone knows the difference between eating a rich juicy apple and the same apple after being dried. There is something lost besides water; the chemist cannot measure it, but the cow and the man can. I do not know of any better succulent food than silage. We feed it every day and

there is nothing the cows love so dearly or do so well on. We also feed roots, although we do not grow as many as you do, because we can grow silage so much cheaper.

Something that is more often neglected in the dairy stable is regular watering. We water horses three times a day whether they are doing anything or not, but the cows are watered only once a day, and sometimes a day is skipped. A cow that is giving any considerable quantity of milk drinks 75 to 125 pounds of water daily. It is impossible for her to take all that at one time, and it is not possible for her to give the maximum amount of milk unless she has that amount of water, as water constitutes 87 per cent. of the milk produced, besides what she needs for maintenance.

I am often asked how many times a day should a cow be fed. A cow does not eat in the ordinary acceptation of the term. We turn the cow into the pasture in June and say, "See that cow eat." She is not eating at all; she is simply gathering food into a store house to provide her with a good square meal, and if she did not afterwards eat the food so stored, she would starve to death. After her store house is filled, she retires to a quiet place to eat it. We say she chews her cud, but she is really eating. I do not care how many times you feed her so long a you do it regularly; only give her enough so that she can chew the cud all the time she wants to. In that way she will make milk economically.

Q. What foods do you recommend besides silage?

A. That depends on the cost of the food stuffs in the market. I have no set way of feeding. Sometimes I can buy bran cheaply; sometimes cotton seed meal; I watch the market, buy those food that contain the elements I want, and then make up a ration. Last year I bought a car load of dried distillers'—not brewers'—grains. This food contains a large percentage of protein and is very digestible, and is cheap.

Q. What is your experience with lucerne?

A. Not very extensive personally, but I regard it as a god-send to the dairy farmer or stock-raiser wherever it can be grown.

Q. Would you consider bran at $18 per ton too expensive to feed to a dairy cow?

A. Not in limited quantities. I never fed anything that would produce as much milk for its weight as bran, and am sorry the price has gone up so.

Q. If you were feeding a meal ration of eight pounds per day, how much of that should be bran at $18 per ton?

A. It would depend on what I had to mix with it. If I had distiller's grains, I would not put in more than one pound of bran. I regard the bran as an appetiser and corrective. There is nothing that agrees quite as well with an animal's digestion as bran.

Q. What value do you place on linseed meal?

A. It is rather high priced, but it has a very good effect on the animal, and I would always feed more or less of it. Most assuredly if I had no silage. When I am buying feed, I look at the manurial value as well as the feeding value.

Q. Is linseed meal at 3 1-2 cents a pound as cheap as bran at $18.00.

A. I assume that by linseed meal you refer to ground flax. I know nothing about that. I refer to the new process linseed meal from which the oil is extracted.

Q. How do you prevent bran from caking?

A. We are very careful to keep it dry.

Q. What do you feed in summer time to supplement the pasture if it is dry?

A. If I had a good silo full of silage I would supplement it with that, as it is just as good a summer food as a winter food. I cannot see how any dairymen can make milk at the greatest profit without a silo.

Q. Do you feed meal wet or dry?

A. We never mix it into slop.

Q. What would you do if you had no silage?

A. Build a silo right now.

Mr. McMillan: I do not think that the question relating to bran was properly put or properly answered. Suppose we had a supply of the common feeds and were going to feed eight pounds of a mixture of grains; in that mixture, how much bran should be used? From my experience I should say about two pounds of bran in eight pounds of meal, the meal consisting of oats, barley, a little oil cake and shorts.

Hon. Mr. Dryden: In a word, you have to use your own brains. It is the man who comes here and listens and then thinks it out for himself who will get there.

METHODS OF MARKETING DAIRY PRODUCTS.

By Professor H. H. Dean, Ontario Agricultural College, Guelph.

The amount of money to be made out of dairying depends largely upon our skill and business ability in marketing the product. I shall divide my subject into three parts, first, the products themselves; second, where to market them, and third, the principles to be observed in marketing.

The chief products of the dairy are milk, cream, butter and cheese. The milk sold from the farm should be produced in the very best way possible from healthy cows, fed on pure, clean food. The cows should be milked in a cleanly manner, and the milk cooled as soon as possible to a temperature of 60 deg. or less. For sale in town or city, it should be cooled to 50 deg. or lower. The reason for cooling is that fermentation is thereby arrested. The cream produced on the farm is best obtained by the use of the separator, so that the quality and richness may be controlled. Cream for commercial purposes should test at least 20 to 25 per cent. fat. When sold to the creamery, it should test from 30 to 35 per cent. fat. The advantage of having cream rich in fat is that the farmer has more milk at home for feeding, it costs less to transport cream to market, and rich cream does not sour or spoil nearly so rapidly as poor cream. The butter sold from the farm should be of the very best quality, the finest flavor and best texture, salted so as to suit the particular requirements of the market, and put up in a neat and attractive style. Flavor is the most important point in butter. A great deal of the butter produced in winter on the farm is not of good flavor; it is either turnipy or off flavor in some other way, and often possesses a combination of objectionable flavors, and the farmer receives probably two cents per pound less for it on that account than would otherwise be the case. The value of nearly all dairy products depends upon their flavor, and not nearly sufficient attention is paid to that point.

In reference to cheese, there is a limited demand for a small cheese weighing from eight to ten pounds. These are preferably coated with paraffin wax to prevent drying out. Some farmers find that they can make this kind of cheese and sell it at a good profit.

Where shall the farmer find his market? The best market for the average farmer undoubtedly is a good cheese factory or creamery. When a man has this in his neighborhood, he makes a mistake as a rule if he tries to market his products in the town. The cheese factory can usually afford to pay a higher price than he will get elsewhere. The great disadvantage in marketing butter at a country store is that the store-keeper cannot afford to pay a higher price for good than for poor butter, because by so doing he is apt to offend some of his customers and so lose their trade. Where you have good private customers or can sell to a reliable commission house, and get them to take your butter regularly, I think this is the most desirable plan where the product is sold direct to the consumer. In dealing with a commission house, it pays to investigate a little to see that the firm is a reliable one.

As to methods of selling: I think it pays to adopt in a modified form the methods of the vendor of patent medicines, who makes you believe you have every disease known, if you read the advertisement. The dairyman should not only advertise, but he should let the people know that dairy products are the most valuable products that can be used for food,—describe for example the symptoms of the baby when it is given bad milk. Women who have trouble in managing their husbands should be reminded that there is nothing that will oil a man's temper—and indeed his whole system, and keep it in such good running order,—as good dairy products. More advertising of this description would result in great benefit to his business. Recently a French scientist discovered that in sour milk there are germs or organisms which fight against those in the body which tend continually to destroy life. He says that the time will probably come when we shall discover in milk a germ or organism which, if taken into the human system in the right proportions, will make us live practically for ever. I am not prepared at the present time to go quite so far as that, but it is a fact that milk acid, as contained in sour butter-milk, has a wonderful effect as an aid to digestion. I think that if our dairymen would advertise this, and supply people in towns and cities with first class butter milk, they would be surprised at the amount of money they could make out of milk that is largely wasted at the present time. It will pay you to give an advertisement to the local paper. Invite the newspaper man to your farm once in a while and give him a good drink of milk, and you will find that he is as susceptible to good milk as he is to the milk of human kindness. Bring your goods before the people who have the money and are willing to pay for the best article.

These are some of the principles to be observed in the marketing of our dairy products. First a good article; no man should attempt to palm off as first class, an article that is inferior. Second, deal honestly with the man who is getting your products, and see that the butter weighs sixteen ounces to the pound. If you have a batch of butter that is not quite first class, do not try to sell it as first class; tell the purchaser it is not first class and that you do not expect a first class price for it: deal honestly and squarely with the buyer. Third, advertise your dairy products; get them before the people; let the people understand that you are making a fine quality of butter, that you are producing good milk, and that it will pay them to deal with you. Do not forget to advertise. If the dairyman will do that, he will probably find that there is more money in dairying than in any other department of farming to-day. As long as the world exists, people will want the products of the dairy. Milk forms the chief food of man through a considerable portion of his life, and the products of the dairy are on the table the world over, and people are willing to pay a good price if you will give them a first class article.

G. H. Barr, Superintendent Western Dairy School, Strathroy: My experience has been rather in the line of manufacturing than in selling dairy products, but I learned long ago that there is not much trouble in selling such products if they are of the right quality. There is no trouble in getting the highest price for an article of first quality. It is an established fact that a large quantity of uniform quality in any line will always bring more money than the reverse. Following that principle, the co-operative system of dairying is the most profitable for the farmer, and therefore cheese and butter factories are the best places to dispose of our dairy products. Some of the large cheese factories get better prices than do the smaller ones for the same quality of goods. The smaller factory may have equally as good cheese, but it does not produce the quantity. The reason is obvious. It costs as much to inspect one hundred cheese as it does to inspect five hundred or a car load. The cost of assembling small quantities of cheese or butter is greater so far as freight is concerned.

It is equally true that the farmer who manufactures his butter at home cannot get as good a price for it as can be obtained by a creamery. Of course any one making a fancy butter for special customers can always get as much for it as for creamery butter; but the trouble is that too much of the butter manufactured on the farm is anything but first class. Last summer I visited a warehouse where a man was putting up dairy butter. It was a revelation to me. The butter was lying around in baskets, pails, casks and every style of package, and there were as many different colors as there were packages, and the flavors were just as diverse. There was a man engaged in working this butter over until it was uniform in color. When that was accomplished it was pretty much like axle grease. It was then put up in 56 lb. creamery packages, and sold for four cents per pound less than creamery. The merchant had his profit on it before he sold it to the dealer, the dealer had to engage a man to work it over, and then to make his own profit; so that if it sold at four cents less than creamery, you may know how much the farmer was likely to get, and I am sure there was no money in it for him.

I admit that some nice butter is made under the private dairy system; there is no place where nicer butter can be made; but that style of manufacturing will never improve the reputation of Canadian butter in the export market If we could keep such stuff off the market as I have referred to, you will readily understand how much more butter will be eaten, how much more we should get for it, and how much better our reputation would be in the old country market.

Any one living in a city knows how hard it is to get good butter. People will pay three or four cents a pound more for creamery butter than for dairy butter because they can depend on it being of good quality.

In regard to cheese our reputation in the old country is second to none. The reason is that our cheese has been manufactured under the co-operative system and we have been able to put large consignments of the goods on the market. There is only one thing to do if you are going to manufacture butter at home, as many will continue to do, and that is, to learn how to make good butter. The only way to do that is to have your wives and daughters take a course at some of the Dairy Schools.

After the butter is made, do not put it up in all sorts of packages. Butter from the farm should be in one style of package only, and that is in pound prints neatly wrapped in parchment paper. Then market it as often as you can. In winter time it often takes three or four weeks to get a firkin of butter for market. It is far better to put up the proceeds of every churning in pound packages and market it at once. In making butter at the farm,

keep everything clean and everything cool. If we are to improve the product, we must have lower temperatures all the way through. I have an opportunity of seeing as much of the milk delivered to factories as anyone, and if there is one thing more than another that is necessary, it is greater cleanliness at the farm in handling cream and milk. That is one of the weakest points in the business to-day, and the farmers do not seem to realize the necessity of having everything scrupulously clean in connection with dairy products.

Q. Can you overcome the flavor of turnips in cream when manufacturing it into butter?

Prof. Dean: Pasteurization will overcome it to some extent, but it should be overcome in the feeding.

Q. Why is it that when a man sends a small amount of milk to the creamery it usually tests higher in fat than the milk of a farmer who sends a large quantity?

Prof. Dean: The reason is that the former usually produces the milk from cows that yield a small quantity, and such cows usually give milk that tests high; that is as a general rule. As a rule it is better to send the whole milk to the creamery where you can deliver it for five cents per hundred pounds. If it costs more than that, deliver the cream. A finer quality of butter is secured where the whole milk is delivered.

Q. Is it possible to feed turnips?

Prof. Dean: It is possible, but there is always the danger of tainting the milk. We advise all our patrons not to feed turnips; they can grow mangels just as well.

Q. Is sugar beet pulp satisfactory?

A. Sugar beet pulp will not taint or flavor the milk; the fresher you get it the better.

Q. What feeding value has it?

A. So far as our experience goes, about the same value as silage, that is, $1.50 to $2 per ton.

Q. Have you fed it mixed with molasses?

A. Yes, and it is quite satisfactory.

Q. Was it equal to bran?

A. No; I do not think so.

Q. What is the best time to feed turnips to cows?

A. We have fed turnips before and after milking with little difference in the result.

GRADING UP A DAIRY HERD.

J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa.

The question of grading up the dairy herd is the most vital question in dairying to-day. When we consider that, according to the last census returns, the dairy cattle of this country yield only 3,000 pounds of milk and 100 lbs. of butter per year on an average, and that there are herds in this Province in which individuals yield as high as 12,000 pounds of milk and 500 lbs. of butter, you will understand the possibilities that exist in this direction, and the incentive that exists to grade up the dairy herd. How are we to set about it? The first step in my experience, is to feed properly and feed enough. The great fault with the average dairy farmer is that he stints the feed. If you are to get the best from your cows that is in them, you must

feed them; you must feed not only for the reasons that the products from well fed animals are more economically produced but because the progeny will be likely to improve under such treatment. The original cow was not a good dairy cow; she has been made one by selection and feeding. Therefore, if we neglect these two things, how can we hope to improve our herds?

The next step is careful selection. There are immense possibilities in selection to the man who is careful to retain only good cows.

But something more than that is necessary if we are going to succeed in grading up a herd; it is the use of good sires. The breed to start with will depend upon the line of operations you have in mind. If you are going in for cheese production, I would advise the Holstein or Ayrshire. Anyone of the breeds will do well in any line of dairying, but in my experience the breeds named will give the best satisfaction where kept by cheese factory patrons. For butter production, I should recommend Jersey, Guernsey, Ayrshire or Canadian. If you are shipping to the city market, I should recommend Ayrshire with a little Guernsey blood for the reason that it will improve the appearance of the milk and cream, and in every case the cross will do as well or almost as well as pure breds. The milk of the Guernsey is of high color, although not particularly rich, high color and richness in fat do not always go together, although the general opinion is that they do.

When once a certain line of breeding has been decided upon, follow that line. If you remember that a cow giving 3,000 lbs. of milk a year, bred to a good bull of the same breed from a mother that has given, say, 10,000 lbs., is likely to give a heifer that will give you from 7,000 to 8,000 lbs. of milk, you will see the possibilities. Three thousand pounds of milk may pay for the keep of the cow, but 6,000 lbs. may be got from a cow with almost the same amount of feed, and thus you have 3,000 lbs. to the good, which is equivalent to $25. This demonstrates the advantage of buying a good bull to head your herd. It is a great mistake to suppose that because a bull is pure bred he is necessarily a good bull. Every bull that heads the herd should be there because he is known to be from the best milk producing females that exist in any district that is accessible. A man may give too high a price, but as a reasonable limit I would say that the farmer is justified in paying as high as $200 for a good bull to head his grade herd if he has a fair market for his product, and may expect to get his money back in a few years.

To grade up a herd successfully, you must keep a record of the yields of your cows. Many dairy farmers are now keeping such records daily. It is the work of only a moment to jot down the weight of the milk night and morning after placing the pail on the automatic recording scales, and you will then know just what each cow is giving. Many farmers suppose that a cow that gives a large amount of milk when she first comes in is the most valuable cow. I know an instance of a cow that gave 1,800 lbs. of milk the first month: the second month, she gave 1,500 lbs.; the third month, only 1,100 lbs., the fourth month, 700 lbs.; the fifth month, 300 lbs., and the next month was dry. There are many cows like that in our herds. I know of another cow that started off with 1,000 lbs., the first month; 990 lbs., the second; 1,000 lbs., the third; 980 lbs. the fourth; 1,000 lbs. the fifth; and for eight months was only once below 900 lbs. During the ninth and tenth months she gave a little over 700 lbs., and the eleventh month a little over 500 lbs. That is the kind of cow to select, and such facts as this can be ascertained only by keeping a record. The cow that gave nearly 2,000 lbs. the first month did not do as well by a good deal as the cow that never went much over 1,000 lbs. a month, although the latter would generally be considered a common cow and

the former an extra fine one. If you keep track of every animal in the herd in this way, you can soon bring your herd to a high standard.

Besides feeding, breeding and selection, another important item is care. It will pay every time to give cattle all the care and attention possible. Go out of your way to look after them. It will pay in dollars and cents not only on the day you do it, but in days to come.

I wish to specially emphasize the importance of succulent food. Comparing the records of cows fed on succulent food with the records of those fed on dry food, we found that those put on dry food decreased their yield 22 per cent. in two weeks while those put on succulent food only decreased the yield six per cent. Therefore the succulent food—which cost no more—meant a saving of 16 per cent. of the product.

The next point is to properly look after the calves. It is as easy to spoil a dairy calf as it is to spoil a child, and it must be fed as carefully as most parents feed their children. They may be spoiled by becoming too fat. I knew a farmer who had an excellent cow which he purchased at 5 years. She gave about 500 lbs. of butter the first year and dropped a heifer calf. He was so proud of that calf that nothing was too good for it. It was kept in high condition and was the chief attraction of his stables in his estimation. At two and a half years, the heifer calved, and what was his disappointment to find that instead of giving 350 to 400 lbs. of butter the first year, she gave only 200 lbs. The next year, she gave only 270 lbs., and she never passed the 300 lb. mark. Now, the first calf dropped by this heifer was a female. The farmer was not so delighted with this one, and kept her in only fair healthy condition. The first time she calved, she gave 375 lbs. of butter, and with her second calf, she went over 400 lbs. This will give an idea of the effect of feeding. Be careful of the food, and weed out inferior animals. There is no use in keeping a cow that only pays her board. We have cows in our stables that will return $3 for every dollar's worth of food consumed, and we have had others that have returned only 33c. for a dollar's worth of food. It seems to me one of the most remarkable things I know of that dairy farmers do not grasp these facts. The average returns from dairy herds are scarcely sufficient to pay for the keep, when the industry could be made not only fairly profitable but sufficiently so to enable everyone engaged in it to put by profits for old age.

Q. Is it not possible that the calf you referred to as being spoiled by overfeeding was weakened before birth owing to the excessive strain on the dam in the matter of milk production?

Mr. GRISDALE: It is not my experience that calves from the heaviest milkers have weaker constitutions than those from light milkers.

Q. How much rest do you advise between milkings?

Mr. GRISDALE: Six weeks is sufficient unless the cow is a very heavy milker. I like cows to come in at not much more than a year between calvings. In the case of a heavy milker thirteen months is better. Of course if you want to make a record for a lactation period, 13 or 14 months is desirable.

Q. How often do you feed?

A. Twice a day. Recent experiments show that so far as the amount of milk and the condition of the animals are concerned, there is little difference whether they are fed twice or three times, and that the additional labor of feeding a third time is not compensated for. We feed at 5.30 a.m. and at 3.30 p. m., ensilage, roots, meal and chopped straw, and at 7.30 a.m. and 5 p.m. they are fed hay.

Q. How are you to know a good sire?

A. If you are a good judge of dairy cattle you will probably be able to form an opinion from the calf. If the breeder with whom you are dealing is a reliable man, you had better take his word as to the product of any particular cow; he will probably know the amount of milk she has given, and he will know what the calf's sire's mother has done in this respect. That is the only data on which to form an opinion. If you can go back to the records for two or three generations all the better. The more crosses of heavy milking females there are in the pedigree the better. If this rule is followed in purchasing a sire, you are likely to get eighty per cent. of good calves.

Prof. Dean: Do you find that cows that make records for themselves produce calves that can be depended upon as good sires?

A. I think so as a rule.

Mr. Clemons: I prefer giving good cows a rest of twelve weeks rather than six. Good cows well fed will give more in the shorter time than in the longer milking period.

Mr. Grisdale: With good cows I prefer a milking period of nine months to one of eleven, but for the average cow, I would rather have an eleven month period.

RAISING BABY BEEF.

By Jos. E. Wing, Mechanicsburg, Ohio.

There was a time in Ohio when we did not finish anything at an early age. We thought that an animal's life was naturally divided into two periods, the first in which he got his growth, and the second in which he was fattened. We now recognize that it must be fed all the way along. Our hogs were allowed to run in the woods till they were mature and then we got them together and fed them. When I was a boy we thought that sheep were not ready to feed until they were three or four years old. We never fed lambs; did not think we could. Now in our State all the hogs are marketed at eight or ten months, and nearly all mutton is turned off in the form of lamb. The beef producers have been slower than the other stock men to make the change, but even they have reached the point when they think it pays better to make a steer into beef while it is young. Let us briefly examine the theory of feeding young animals. Why is it that it pays better? and I take the ground that it does, to feed well right at the start. At my home there are three boys, two, eight, and eleven years old. When I help them at dinner time I notice that we all eat pretty nearly the same amount. Little William eats almost as much as the other boys, and he would eat as much if he could hold it. When the year has gone round, we all get weighed on the scales. I find I have lost a pound or two perhaps; it would have been cheaper to have knocked me on the head long ago. The elder boy will have gained six or seven pounds; the second boy eight or nine pounds, but the baby will have gained ten or twelve. You see, what he ate 'stuck to his ribs.' Not only has the baby a good appetite, but he has wonderful powers of digestion and assimilation. As he grows older these powers gradually lessen until the time comes when he ceases to grow, and only requires food to supply the daily wear and tear. Therefore it pays to feed baby animals while they still have that wonderful power of assimilation, and while it does not take as much of the food consumed to maintain the size and growth attained.

Experiments conducted in the United States have shown that a calf will make a pound of gain from a pound of dry matter in the form of grain. What? you ask, is there no loss? Yes, but the loss is off-set by the water contained in the pound of gain. Taking an average of 45 experiments made in the United States, it is found that beef in the first year can be made at a cost of three and one half cents per pound; in the second year at a cost of 7c; in the third year at a cost of 11c; and in the fourth it costs 17c for each pound of gain made.

This does not mean that a man should never feed old animals. If others are content to undertake the cost of bringing them up to a certain age and will then sell them to you at a low enough price, it may pay you to put the finishing coat on these even at an extra cost. But a man who is raising his own beef stock certainly cannot afford to keep the animals any longer than is absolutely necessary to make the marketable weight.

Assuming that the calf from which you wish to produce baby beef is born upon the farm, and it is your desire to milk the cow instead of letting her nurse her calf, how are you to proceed. The hand separator has come into use on the farms very widely in our country. This machine will separate the cream from the milk and leave the milk fresh and sweet. It is warmed a little and fed back to the calf without delay and is almost as good as when it left the cow, except that it no longer contains the fat contents, and this fat the calf needs. This loss of fat may be made up by use of flax seed jelly. In feeding, calves should not be allowed to run to a common trough We have a row of small stanchions and place a calf in each one. Then we feed each one his individual portion according to what he requires, giving him the same amount every time as nearly as we can. Then they are fed dry grain after their milk, it will keep them busy and prevent them sucking each other's ears when turned loose. We feed all the dry grain they will eat up clean.

Q. What kind of grain do you feed?

Mr. Wing: In Ohio we feed corn, as it is a very good thing where grain is to be fed in connection with milk. Here you must be governed by what you have. As to hay, give the calf all the alfalfa and clover it will eat. I would put alfalfa first, but clover will do well if the other is not available.

As to the quarters you house your calves in: Sun and air are almost as necessary for young growing animals as for young plants. In my opinion a good many Canadians keep their stock confined too closely. You cannot make the best beef in ill-ventilated, warm stables. My preference is for a shed that can be opened on the south side, and a sheltered yard so that they may go in and out as they please.

How much grain should calves be fed? Just a little? No; just as much as they can possibly eat and digest, because you want to take advantage as early as possible of their wonderful digestions. In the spring they may be turned out on good pasture as soon as the sun has sweetened the grass, but keep up the grain during the summer if you can. Keep this up until they weigh from 900 to 1,200 pounds. How long that will take depends on how they are bred, and also on how they are fed. It ought not to take much more than eighteen months; never more than two years.

Q. What is a good daily gain for a calf for the first six months?

A. If properly bred and fed, he should gain three pounds per day.

Q. What is the best breed for beef?

A. Cross-breds have done the best. If you take a single breed, I believe it will rest between Aberdeen-Angus, Shorthorns and Herefords.

Q. How much flax seed would you give calves?

A. A table-spoonful to begin with, and gradually increase it.

Q. How often do you feed?

A. Twice a day; I think that just as good as three times.

Q. Do you allow them to have horns?

A. I have no use for horns on a calf. I cannot feed cattle with horns on to good satisfaction. A better way than sawing them off is never to let them start. Take concentrated lye and apply it to the place where horns would come when the calf is ten days or two weeks old. Lay the calf down, take the shears, and clip the hair away where the horn would come through. Wet that point and take on the point of your knife a small amount of the lye and paste it down. After that do not touch it. This will prevent the horn growing and will take only five minutes of time; but it must be done before the horn breaks through the skin. Caustic potash may be used but it takes too much rubbing. There are also liquid preparations for the purpose, but they run down the face and make scars.

Q. Do you not allow the calf to suck at all?

A. A very short time I can tell you, if at all, but feed new milk for ten days; then gradually change to skim milk.

Q. Have you had experience with roots and corn silage?

A. I think a lot of corn silage, but it should have all the corn on it you can get, and the corn should be ripe when it is put up.

HOW TO IMPROVE THE QUALITY OF OUR EXPORT CATTLE.

By Thomas McMillan, Seaforth.

The question of how to improve the quality of our export cattle is a live one, and a matter of prime importance to every beef-growing farmer and as well to the country as a whole.

We hear much at the present time as to the great importance of our manufacturing industries, and I am sure we are all proud of the wonderful growth and expansion which is going on in these lines; but the more we study the requirements of these interests the more do we realize how largely they are dependent upon the farm for supplies of their raw material.

For instance we find from the last census returns that the largest item in connection with the annual output of these industries is that of hog products, amounting in value to rather more than $50,000,000 per annum; the second largest item is that of flour mill products amounting to $32,000,000 per annum, the third largest is that of our dairy products amounting to $30,000,000 per annum; the fourth comes our meat packing and slaughtering products amounting in value to over $22,000,000 per annum, and in the case of these three latter items, the raw material supplied by the farmer amounts to over 85 per cent. of the finished products.

The farmers of this country must realize that, in order to be highly successful in the future, they must continue to be manufacturers in the true sense of the term, manufacturers of beef, mutton, bacon, poultry, dairy products, etc., and in all these lines we must aim to put up a high standard of goods,—the best is none too good.

With regard to the quality of our beefing and export cattle, those of us who are engaged in the business know that it is not as high as it ought to be. Although we are now able to supply the export trade with a certain percentage of high class animals yet, generally speaking, they are not up to the

desired standard. Why is this? The answer to this enquiry will to my mind, lay down the course which we farmers and beef growers ought to follow in order to produce high class export cattle.

It goes without saying that the first requirement in any line of business is the man himself. Show me an individual who has been successful along an particular line for a continued length of time, and although I have not known him, I can point to him as being one who has carried into his business that careful attention to all its details which, when properly directed, will lead to success along any line. But apart from this consideration, four requirements are demanded, and these must be complied with.

First, banish the system, or I should rather say lack of system, which, during the last number of years, has been too largely followed by many farmers in breeding females of a fairly desirable beef type to sires of the special dairy breeds. This practice in the past has been a curse to the export cattle trade of this country, and also, I believe, to the financial success of the farmers themselves. They have failed to realize that the reason why the best representatives of the different breeds have attained their present degree of excellence is because of the great care and judgment exercised in selection and mating employed by the leading breeders. Our farmers in their anxiety to obtain, perhaps a higher percentage of butter fat from their cows, have crossed them, first, say, to a Jersey sire. Then, wishing to obtain increased flow of milk, they bred the offspring of the first cross to a Holstein sire. Afterwards, as the cheese business became prominent in their minds, they sought to obtain the ideal cow by mating this second offspring to an Ayrshire sire. As a result of such indiscriminate breeding, the law of reversion asserted itself to such a degree that we now see in the stables of many farmers some of the most characteristic specimens of the "scrub" cow that the world has ever produced.

I do not wish for a moment to put a damper on the dairy business by advising dairymen not to use special breeds; but I would urge all dairymen to settle in their minds what breed of dairy animals they are going to work with, and having done so, to stick to that breed, and not to mix up the different breeds indiscriminately, as has been done in the past. The successful grower of beef cattle will also stick rigidly to the beef breeds. This is the second requirement in order to be successful in the raising of beef cattle. No good object can be gained by crossing the different beef breeds. Although good feeders may be obtained from the first cross, yet if the practice is continued, it will end only in disaster. We should ever bear in mind the settled principle in stock breeding that "like begets like"; and that the longer we breed in one continuous strain, with infusion of fresh blood of the same kind, the more uniform will be the results obtained. On the other hand, if we begin crossing the different breeds, never know what we are going to get, and we are not likely to be very well satisfied with what we do get.

On the herds of Shorthorn grade females which now exist largely throughout the beefing sections of the Province, there is no other class of sire that will give the same desirable results, as the Shorthorn sire. I have for years made a close observation of this matter in my contact with the farming community. I have known a number of herds of such cows that have been bred for a few generations, in some instances, to Hereford sires; in other instances to Polled-Angus sires; and although the first cross in each case gives a most desirable feeding animal, yet, in breeding those first cross females again the offspring dwindles in size to such an extent that the third cross generally convinces the breeder that a serious mistake has been made, and he then becomes anxious to retrace his steps. I want therefore to again impress

the point that we should choose our breed and stick to it. For all practical purposes the present herds of grade Shorthorn females belong to the Shorthorn breed and should be mated to pure bred Shorthorn sires. I am not taking any objection to the other beef breeds. If you want to handle Herefords, Polled-Angus or Galloways, do so. A good Polled-Angus bullock will probably fill the eye of the butcher equally as well, if not better, than an animal of any other breed; but if these breeds are to be handled, get the females also, and don't try to build up your herds by mating grade Shorthorn females to sires of these other breeds. Let me put in a word for the "general purpose" cow. This is a cow which will not only yield a profit at the pail, but which, when no longer required for this purpose, will possess the inherent quality of putting on beef easily. These qualities are indicated in the nice, clean cut head, full mild eye, breadth and fullness of chest, good heart girth, straight back well padded over the loin, smoothness over the hook points, with the buttocks reaching well down to the hocks, general fineness of bones, with nice mellow skin, and a good coat of mossy hair, indicating good condition and a good feeding quality.

When once the beef grower is possessed of a number of desirable females, they should always be mated to pure bred male animals, that is, animals of a desirable conformation and good healthy constitution, whose pedigree can be traced back through a long line of notable ancestors. Such animals are much more likely to possess that power of being able to transmit their own qualities to their offspring than those of indifferent breeding, even though good individually. To too great an extent, the beef growing farmer uses sires of inferior breeding and quality, whereas the best is none too good.

Another great mistake is that of breeding too largely from young male animals from one to three years of age, or before they arrive at that degree of maturity when we may reasonably expect that they will be able to transmit vigor of constitution to their offspring which is most desirable. Just when these sires reach a desirable age, the practice is to send them to the block. If male animals are properly cared for and handled, there is no reason why they should not be serviceable sires until they reach nine or ten years of age. Male animals should have the freedom of a box stall or yard where they can obtain sufficient exercise, as lack of exercise is often the cause of lack of virility.

The third requirement is that of judicious feeding, and comfortable stalls during the winter period.

Although proper breeding is important, yet it will accomplish nothing without being supplemented by a judicious and generous system of feeding, such as will furnish the animal with such full and appropriate rations as will insure a steady and continuous growth from the time the animal is dropped until it is ready for the market at as early an age as possible. Early maturity offers the only safe system of profitable beef production. When the animal is young and immature its digestive and assimilative functions are most active, and when we know that the waste in the animal's system is much less during the young and active stage of growth than when the animal comes nearer maturity, it becomes evident that the earlier we can get our animals ready for the shambles the greater will our profits be. Every practical feeder knows that there is no mystery in the growth and rearing of animals; every pound of additional weight placed upon the carcass represents so much food and is a certain cost to the owner. In fact, whether the animal is kept stationary, increasing or decreasing in weight, it is costing the owner so much every day; so that the only way in which we can be paid for the food consumed is through the increase obtained; hence the great folly of allowing our young

animals scant nourishment and insufficient shelter during the winter and keeping them on the pasture during the summer. Such a system will not only retard their present growth, but it will so contract their digestive system as to render them unable to make the same good use of their food while they are being fattened for the market. If we would follow the proper system of growing our beefing animals this business of stall feeding—of cramming our beefing animals with very heavy rations of meal during the fattening period—is a mistake. All through my talk I have used the term beef-growers, and if we would handle our business as we should, we must grow our beef animals rather than fatten them; this is the only way in which we shall ever be able to furnish high-class beef, and the young growing animal should be in condition almost ready for the butcher at any time. We hear much nowadays of prime quality of meat, or what is called marbled beef, that is, beef with the fat deposited in the lean tissue of the meat. Bear in mind that we cannot get that kind of meat by feeding the animal one day and starving it the next. That is not the way in which this desirable condition of carcass is brought about; neither is it obtained by keeping our young animals in a half starved condition for the first two and one half years of their lives and then forcing them for all they are worth for the next four or five months. The only way we obtain this prime quality of meat is to nourish the calf well, and never allow it to lose its calf flesh, but keep it growing and thriving in such a way as to enable it to begin to deposit fat in the lean tissue from the start, and thus grow the fat as the animal is developing. The finishing process will then be comparatively short and easy, and you will have what we call "marbled beef."

The last requirement is good care and kind treatment. Without this no herdsman will ever make a success of his business. We must ever realize that scrub care means scrub animals and scrub beef. In the stable regularity as to the time of feeding must be observed, and the animals will soon know just when to expect their next ration; but if this is withheld for half an hour or so, the animals will be restless until it is given. Much also depends upon the general treatment to which the animals are subjected. If they are abused or ill-treated in any way we cannot expect them to thrive well. We often hear of very different results from the feeding of animals on similar rations, and I sometimes think that as much depends upon the feeder as the food given. Thus far we may go on saying that satisfactory results will never be obtained from the feeding of any ration unless it is accompanied by judicious care and kind, gentle treatment. In conclusion let me say if the requirements I have outlined were only carefully observed by our Canadian beef-growing farmers, we should in a very few years so revolutionize the beef growing industry as to engage the attention of British consumers and Canadian consumers as well, and thus our beef would command the highest price both at home and abroad.

Duncan Anderson, Rugby: The fact that our beef cattle are not as good as they should be is chiefly due to the fact that we have not been using the right kind of sires. The farmer usually buys a sire from a man who handles a few registered animals and has no distinctive type in view. If I wanted a bull to improve my beef stock, I would go to the breeder who has been in the business for, say twenty years, and who with an ideal in his mind has been breeding close to type during all that time, and has fixed it in his herd so that his animals are uniformly of that type. Pedigree, however, is not everything in a sire; you must have individual merit as well. In choosing a bull, I would not buy one that had not a good centre; he may be somewhat deficient at both ends. If he has good heart room and good strength of fore-rib, he will have good constitution, and constitution in domestic animals is just as important as the title deed of the farm or the foundation of the mill. He must also have a

good back and well sprung rib. By a good back I mean a broad flat table back. I am not so particular about width over the hook points, but there must be good depth of loin, as the loin meat is the most valuable. A finished animal weighing between 1,220 and 1,400 pounds will give to the breeder, the finisher and the consumer more profit and better satisfaction than a great big, rough animal that has excessive bone. Length of rib is indicated by the under-line. I never saw a bad doer that was well let down in the hind and fore flank.

Early maturity is essential. I find it pays better to have cows come in in the late autumn or early winter months than in the spring. I have been following that practice for years with good results. I have heard men say they cannot grow cattle profitably. I have been engaged in it for 25 years and have made money out of it, and can say that, besides increasing the productiveness of the farm, there is a profit in cattle feeding. With reference to the work of Farmers' Institutes, I think it is a mistake to send speakers on beef cattle to some of the counties in eastern Ontario where dairying is the leading industry. These speakers should devote their attention to the beef raising districts.

Q. How often do you feed?

Mr. Anderson: Twice a day—a grain ration and roots. We let our cattle out once a day, and when we tie them in, we sometimes give them a little hay in addition.

Q. Do you feed meal with grass?

A. I do not think there is much profit in doing so, if you have plenty of good grass.

Q. Would it not make a better quality of meat?

A. I suppose it would. The ideal condition for the growing of beef cattle is to have a herd of fairly good grade cows, and use a pure bred sire. Use a hand separator, feed the skim milk and send the cream to the creamery. I can grow animals weighing from 900 to 1,100 pounds at two years on $28 to $30 worth of feed at market prices; I do not mean finish them. The second summer we do not feed anything but grass.

Q. How much meal would you give a steer when finishing?

A. I do not think that it pays to feed a steer of 1,200 lbs. 12 lbs. of meal a day right at the finishing time; I would rather keep him two weeks longer and feed less meal per day. If I can get four cents per pound at two years old, I will let the other fellow do the finishing.

Q. What grain mixture do you prefer?

A. Fifty per cent. oats, twenty-five per cent. peas and twenty-five per cent. barley.

Q. Don't you think they could do without roots?

A. No; roots keep stock in a thrifty, healthy condition.

Q. How much grain do you feed per day while the animals are on grass the first summer?

A. About one pound per head.

John Ross, Scotland: I have been farming on one farm for 35 years. There is a distinct cleavage between beef cattle and milk cattle in the old world. We never think of getting milk from an animal that is going to breed us good calves; neither do we think of taking the calf from its mother. We like to see cow and calf working together. Our endeavor is to get our cows to calve as soon after December 1st as possible. We then tie them behind the cows in the byers. To begin with we feed five times a day. We find that the nearer we can work to nature the more advantage we get. Calves allowed to go with the cows will feed much oftener than twice a day. We feed roots and

straw during the winter. In the spring we use a few mangels to carry them on to grass time, which is not till the middle of May or June 1. Then calf and cow go on the grass and do not return to the stable till the end of October. We usually allow from an acre to an acre and a half for each cow and calf. When the animals come off the pasture we take the calf off the cow, and then we feed the calves for all they are worth. The calves are kept in a covered court where they tramp over the manure thrown out from the cows. We cook all our meal, pouring it over the cut straw and mixing them up together. Animals will assimilate more food so presented than they will if it is uncooked. We estimate that two pounds of cooked food is equal to three of raw. The expense of boiling is a small matter. We used to pulp turnips, but I concluded there was no particular advantage in doing so. We now cut them the same as for sheep. Our calves are sold at sixteen to eighteen months in September and October, when we expect them to weigh from 1,200 to 1,400 lbs.

Q. What prices do you get at that age?

A. For ordinary cattle we get about £22, or about a pound a month for every month kept. For our show cattle we get from £30 to £50, and they are usually carried on for another year.

At this point the Watt yearling heifer was brought in and Mr. Ross went over her points. He said: This is one of the nicest Shorthorns I have ever seen either in the old country or the new. She has a nice clean nose, which is a point to which we lay great attention, and a beautiful little head, and she handles beautifully all over the back and shoulder. She has a nice neck, and the ribs are beautifully covered. She is not too broad on the hooks but broad enough. I have never seen anything in Scotland better, and few as good.

CANADIAN BEEF ON THE BRITISH MARKET.

By Hon. John Dryden, Minister of Agriculture, Ontario.

During my visit last summer to Great Britain I spent several days in Liverpool studying the trade in Canadian beef and mutton. I obtained access to statistics, which I believe to be reasonably accurate, from which I discovered that at present it is impossible for Great Britain to supply more than sixty per cent. of the total amount of meat products consumed in that country. While I presume it might be possible for the farmers in that country to increase somewhat the amount of meat annually produced, it must be remembered that the population is increasing at the rate of about 400,000 annually, which is a greater ratio than any probable increase in the supply of beef from domestic sources. Statistics show also that the consumption of beef and mutton in that country has increased in the last 20 years from 77.4 pounds per head of the population to 88.4 pounds per head. I think therefore we may take it for granted that there will be a ready market for all we can send from this country for years to come.

At the present time, practically no dead meat trade exists between Canada and Great Britain, but the trade in live cattle shows a considerable increase. I find that the increase for 1903 as compared with 1902 was a little more than 103,000 head, the total number imported being 522,546 as against 419,488 head in 1902.

The dead meat taken into the British market is divided into three classes, fresh, chilled and frozen. The fresh meat comes entirely from neighboring European countries. It is not an important factor in the trade and is appar-

ently growing less each year. The frozen meat comes from Australia and New Zealand and some from the River Platte, from which country it is divided, part being frozen and part chilled. The balance of the chilled meat supplied to the British market comes from the United States.

Let no one suppose that any sentiment exists in the British market as to where the meat has been produced. I am often told in this country that American beef has such a reputation that it will command a higher price than our own of the same quality. I was assured by the dealers over there that this is not true, and that the best article presented in the best form always wins, regardless of the country from which it is sent. So long as the people of this country continue to send over an inferior article, so long must they be content to take an inferior price. I have no sympathy for the man who will not try to produce the best. That is not the kind of man I should like to help. I want to help the man who will produce high class animals such as you have seen on this platform. It is not fair to ask him to sell such a product at four cents per pound. It cannot be done; he needs more encouragement than that. I am glad to say, however, that the testimony of those with whom I conversed in Liverpool is that our beef has greatly improved within the last few years. I took the liberty of assuring them that the beef sent over from this country in the years to come would be still better, because more steers of the right kind were now being bred in this country.

How are we further to develop this trade? First, by the use of beef breeds only. I have no quarrel with the dairy breeds. Some portions of our country are better adapted to dairying than to the production of beef; other parts are better adapted to beef production; do not let us quarrel with each other. But when the farmer undertakes to produce beef, he must not go to the dairyman for the material from which to produce it: it must be produced through the use of beef breeds only. Further than that, it is necessary to make a proper selection in the choice of beef animals. Because you have a bull that is registered, it does not follow that it is the kind you ought to use. If you want to produce animals such as the sweepstakes heifer at this show, and that is the type we want, you must be particular as to the quality of the sire and of the females with which you couple him.

The next important thing in the production of a good beef animal is that the calf must be made to grow from start to finish. After you put flesh on a calf, do not let the animal wear it off again foraging around the straw stack in winter time, and expect to make up for it afterwards; it cannot be done. The flesh that animal has lost can never be replaced without great additional cost.

Then, we must produce animals that are ready for market at an early age, baby beef, as it is called. That does not mean that it is undeveloped. That sweepstakes heifer is fully developed; you could slaughter her now. That is the advantage of that particular kind,—they possess the power of maturing early. The majority of animals you cannot get into that condition at that age: they do not mature early enough. To secure it, early maturity must be a characteristic of the animals you breed from. When you select a sire, you must see that he possesses that special quality.

The next question that presents itself in considering the further development of this trade is, shall we send our animals over alive or dead? At present it is "Hobson's choice"; that is, there is no choice. We cannot ship dead meat to Great Britain because we have not the necessary equipment in this country, and to secure it means the expenditure of a good deal of money. I should like to see the farmer with "two strings to his bow" in this respect, because I recognize the possibility that some day or other some disease may

break out in this country and then our animals would be cut off altogether. What should we do with our beef then? I should like to see a trade in dead meat developed, but nevertheless, I think we should continue to develop the trade in live cattle. It is all the better to have both, especially so long as the present embargo remains; if that were removed it would somewhat alter the situation.

Two classes of live cattle are sent to Great Britain at the present time, range cattle, and those grown on the farms in the East. I was informed that very seldom do cattle from the range land in good condition. They chafe in confinement on car and ship board and do not feed well either during the trip or afterwards. I am convinced that animals of this class should be killed in the West and shipped over dead. The other class, grown largely in Ontario, where cattle are tied during the winter, are tractable, and will often improve on the voyage, unless it happens to be a very rough one. In order to obtain the most out of the present trade something ought certainly to be done by the authorities to improve the conditions under which cattle are slaughtered on landing in Great Britain. You may be astonished when I tell you that at Birkenhead, across from Liverpool, where all our cattle are slaughtered, they have the same equipment and conditions for killing that they had thirty years ago. Compared with the conditions at Chicago, they are away behind the age. There is also great need for more room. When a large number of cattle arrive at the same time, it is impossible to deal fairly with the people sending them, for the reason that the carcasses must be hung so close together that it is impossible to properly cool them, and much waste follows owing to the meat becoming tainted. The result is that the dealer receives a less price, but as he has learned to make his calculations accordingly, the loss finally comes out of the farmer. These conditions should be improved. You must bear in mind that they do not compel you, under the embargo, to sell within a certain time, but they compel the killing of the animals within a certain time. If they could be held for some time in proper condition after killing, you would receive more for your beef than you do to-day. I was told that there was a movement on foot to secure more accommodation, but unfortunately the municipality of Birkenhead is not interested. They have authority from the Government to look after the killing, but have no interest in the net returns sent to Canada. That is our interest and we ought to take some steps in reference to the matter. With this in view I have communicated what I have discovered in this direction to the authorities at Ottawa.

Is the present embargo on our cattle likely to be removed, or ought it to be removed in our interest? In Great Britain there are two classes, just as there are in this country. First, those who breed the ordinary store cattle, but do not finish them, and second, those who take these cattle and prepare them for market. So far as I could ascertain, the only persons clamoring for the continuance of the embargo are the breeders of store cattle. Those who are classed as feeders are a unit on the other side. The feeder wants to see plenty of animals on the market suitable for his purpose. He wants to buy cheap and sell dear, there as everywhere else. These two classes are therefore on opposite sides in regard to this question. We should meet very much the same condition of affairs in this country if we undertook the shipment of store cattle out of the country and thus lessened the supply for our feeders. Which of these classes, the breeder or the feeder is of most value to the agriculture of that land? My opinion is that the man who feeds the cattle is of the most value. The introduction of a larger supply of store cattle to that country will no doubt stimulate the feeding of choice beef. This would tend to increase the fertility of the soil,— the employment of additional labor,

and therefore add to the agricultural wealth of the country. If I am right in this, the day will come when their legislators will recognize that the greatest good to the greatest number will be best attained by the removal of the embargo.

That is the situation over there, and in some respects it is similar to what it is in this country so far as the two classes of producers are concerned, except that in this country, where land is so plentiful, there are many who can very well produce cattle up to a certain age, but for various reasons, such as lack of capital and necessary equipment, cannot finish them. My contention is that the people both here and in the old land should be allowed to exercise their own judgment and have liberty of action in these matters. I do not believe in tying the farmer up by law and saying, "I am going to make you do this or that." The majority can decide for themselves without asking our advice as to what is in their best interest.

I see according to the papers that the Irish farmers claim that if Canadian cattle are allowed in it will ruin them. Why don't they teach the people in Ireland to feed the cattle on the farms where they grow? They spend their time producing steers which the people in Scotland and England buy from them and feed, and not only make most of the profit, but add to the fertility of their soil. But these people in Ireland are mistaken. To admit our cattle would mean to increase the number of persons engaged in feeding in that country, and many feeders have gone out of business because they cannot get store cattle at a sufficiently low price to give a margin of profit. If a supply could be assured, more men would go into the business, and the wealth of the country would thereby be increased. It will be found in agriculture that the greatest good always results from the most complete liberty of action.

Another reason why I think the embargo will be removed before many years, is because there exists in Great Britain an organization having for its object the removal of the embargo, which embraces in its membership many other classes besides the feeding farmers. These local or affiliated societies number 136, and their members are most determined and persistent in their efforts.

In conclusion, let us never forget that whether the embargo is off or on, it is only the best cattle that will win a place in that market, and the best class will certainly never come from any dairy breed, nor from inferior beef breeds. It will take good breeding, good care and good feeding to produce them, and if you pay attention to these things you will undoubtedly obtain the best price possible for your beef animals.

THE DEAD MEAT TRADE, AND HOW IT WILL BENEFIT THE STOCKMAN.

By J. W. Wheaton, Editor "Farming World," Toronto.

The great meat consuming countries today are those of the most highly advanced civilization. As people become more highly civilized, they become greater meat-eaters. All the people in the world do not eat meat, and it is fortunate for the lover of the "savory steak" that this is the case. There are estimated to be 1,500,000,000 people in the world, and if we allow 1-4 pound of meat per head, it would require 750,000 steers daily to supply the demand, a quantity that the meat producing countries of the world could not

begin to supply. There is ample room, therefore, for the demand for meat to increase, a most encouraging outlook for the cattle raiser.

But the important question with the cattle raiser to-day is how best to get his produce to the consumer in a condition that will bring him the most money. The method by which the great cattle producing countries of the world are endeavoring to reach the consumer is by the development of the dead meat trade, killing the animals at large central abattoirs and sending meat in a chilled and frozen state. This method has received its great development in the United States, where the exports of dead meat are twice as large as they were ten years ago. The result of this development has been enhanced values for the cattle raiser, and the utilization of the by-products in the country where the cattle are grown.

The packer has also profited largely thereby, and though he has become wealthy himself, he has put more money into the pockets of the producer. In the Argentine, in Australia and New Zealand the dead meat trade is year by year assuming larger proportions, and these countries, a month or six weeks from the British market, continued to send forward frozen meats at a profit both to the producer and the packer.

But what of Canada? For a number of years the advisability of establishing the dead meat trade has been before the public. But so far nothing in a large or centralized way has been done to establish this trade in Canada. We have been jogging along in the old way, sending our cattle across the water alive to be sold at the port of entry within ten days after landing, with the result that we are very little farther ahead, considering the growth and expansion of the country, than we were ten years ago, so far as our export cattle trade is concerned. Our exports from Montreal for 1904 were over 30,000 head less than in 1903. In my opinion, we shall never reach our possibilities as a great cattle producing country, unless in a very short time the dead meat trade is established on a larger and permanent basis.

So much for the need of having a dead meat trade as well as a live cattle outlet for our finished animals.

I have been asked to say something as to the advantages the stock raiser will derive from the establishment of this trade. Let us look at these from two standpoints: The export trade and the local trade. Canada is not yet a great meat consuming country though she has as advanced a civilization as any other land in the world. But there are not enough of us yet to consume any very large quantity. Therefore, expansion in our cattle industry must come largely from the development of the export trade.

In developing the export market the advantages to the cattle raiser in having the dead meat trade established are many. They may be enumerated in brief form as follows:—

(1.) By sending over our cattle alive we are largely at the mercy of the British buyer, who knows we are compelled to kill at the port of entry within ten days after landing.

(2.) The cattle, after the long and often times rough sea voyages, arrive frequently in a jaded condition and not in the "bloom" that catches the eye of the British buyer; besides, they lose greatly in weight.

(3.) Two car loads of live cattle can be sent forward in one car when killed and dressed, thus affecting a great saving in freight charges.

(4.) Then there is the cost of feeding, loading and caring for the live cattle on shipboard. I have not been able to obtain the figures for 1904, but for 1903, it cost nearly $20.00 per head to send our live cattle via Montreal to England, made up thus: $13.25 for railway and ocean freight and $6.00 extra

for feed, keep in yards, etc., or a total of $2,944,320.00. If the 147,216 cattle sent over in 1903 had been converted into dead meat there would have been a saving of nearly two-thirds of this amount or about $2,000,000.

(5.) By slaughtering on this side and centralizing the business, and by exporting the dressed carcass, we retain the by-products at home, and by utilizing these properly they will return a good profit to the producer and packer.

(6.) Allied industries for converting the by-products into saleable merchandise would spring up, which in turn would give employment to more people and thus increase the home demand for meat.

(7.) The American packer is satisfied if he can get as much for the dressed carcass as he pays for the live animal, the value of the by-product being sufficient to pay the expense of running his large establishment and leave a good profit besides.

(8.) The dead meat trade would give us a steadier and more reliable market for our cattle as the product could be held for a rise in case there was a slump in the market.

These are some of the advantages to be derived by exporting dressed meat instead of the live animal. It would not be wise to discontinue altogether the export trade in live cattle. The two plans should be utilized and the cattle raiser's chances of obtaining a better price for his cattle thus greatly increased. Once established, we believe the dead meat trade would increase at the expense of the live cattle trade as the former would be more profitable for both the producer and shipper.

I have already stated that the local trade in Canada was not large as compared with that of other countries, and yet it is large enough to merit some consideration from both the producer and shipper. As our country grows and becomes more thickly populated the consumption of meat will increase. Even now it is increasing at a rapid rate. Ontario is fast becoming the manufacturing centre of the Dominion. Her factories and manufacturing concerns are increasing in number. This means more employment for men in our towns and cities, and increased consumption of meat products. The local trade of this Province, therefore, is worthy of some attention. We are safe in estimating that at least two-thirds of the cattle marketed every year in Ontario are consumed at home. The percentage may be higher than this, it will not be any lower. The cattle reach the consumer largely through the local butcher or dealer, who kills in a small way, supplying the trade as it will take it. This plan means great waste in the utilization of the by-products and thousands of dollars are lost every year on the animals supplying the local trade, because of this great waste.

The price of meat to the consumer in our larger towns and cities is about as high as he will pay or can afford to pay. With sirloin and other choice cuts selling, for example, in Toronto at fifteen to eighteen cents a pound, you will readily understand that the consumer will cut down his meat diet if he has to pay much higher prices. This being so, there are only one or two ways of increasing the profit on the finished animal to the producer. He can reduce the cost of production by feeding cheaper foods, etc., or the value of the live animal can be increased by a proper utilization of the by-products. But this cannot be done by killing in small quantities at local points. The killing must be conducted at centres where the slaughtering can be done on a sufficiently large scale to permit of every part of the by-products being utilized to the best advantage. Besides, it costs the local butcher about three times

as much per head to kill and dress a carcass ready for market as it does at a large abattoir, and this extra cost comes out of the cattle raiser. It has been this concentration of effort that has made the dead meat trade in the United States so profitable to both the cattle raiser and the packer. To such an extent is this the case that cattle values to the south of the line are considerably higher for the same quality than in Canada. Let us take for example the quotations at Toronto and Chicago cattle markets for Tuesday, November 29th:

Toronto Globe.

Export cattle, extra choice	$4.40	to	$4.75
Export good to medium	4.25	to	4.40
Export cows	3.25	to	4.00
Butchers' good to choice	4.10	to	4.65
do., fair to good	3.50	to	4.00
Mixed lots, medium	2.75	to	3.25
do., common	1.75	to	2.00
Good cows	3.00	to	3.40
Bulls	2.00	to	2.75

CHICAGO DAILY DROVERS' JOURNAL.

Sales ranged up to $6.25 to-day, with a few loads at $6.00 to $6.15, while a fairly liberal number went at $5.40 to 5.85, with most medium to good steers at $4.75 to $5.25, and the common and light steers at $3.50 to $4.15 with good grassers also up to the latter price, and bulk of common to fair lots at $3.25 to $3.75, with a few inferior down at $2.65.

Revised quotations for beef cattle follow:

Inferior grass native steers	$2.60	to	$3.15
Common to good grassers	3.25	to	4.10
Common to fair corn-fed steers	3.20	to	4.30
Fair to medium corn-fed steers	4.40	to	5.10
Good to choice corn-fed steers	5.00	to	6.15
Fancy finished beeves	6.35	to	7.30
Export steers	4.60	to	5.85
Common to good yearling steers	4.65	to	5.90
Well finished corn-fed yearlings	5.85	to	6.80
Corn-fed western steers	4.25	to	6.35
Corn-fed Texas steers	3.40	to	5.50

There is a wide difference in these values, more we think, than is due to American cattle being superior to those in Canada.

In advocating a central dressed meat industry for supplying the local trade in our towns and cities, it may be said that we are running counter to the butchers and dealers in these places. But not so; a radical change has come about recently on this score. A large packing and abattoir concern in Toronto has within the past year or two established retail stores in a number of the towns and cities of this Province for the purpose of reaching the consumer in these places with their supply of dressed meat. This has opened the eye of the local butcher who has found that he cannot successfully compete with this firm unless he can get his supply of meat from some common centre, and the reason is that the large concern by making the most out of the by-products is able to under-sell the local butcher who kills in a small

way. The demand from the butchers for meat dressed and in shape to hang in their shops is growing, and there should be some large centre from which they could be supplied.

Thus, from both an export and local point of view it is expedient that the dead meat trade should be established on a large and permanent scale in this country. As we have shown, it will, generally speaking, mean enhanced values for cattle, and thus prove of great advantage to the stock-raiser. And what benefits the cattle raiser, will benefit the breeder of pure-bred cattle. The dead meat trade will not do everything for the producer. He must first get the right type of animal for feeding, and this can only be done by careful breeding and selecting. With a good animal well fed, the dead meat trade will place the feeder in a position to secure a better market for his cattle.

There is one phase of our cattle trade that should not be overlooked in discussing this question. To-day our country is free from any contagious cattle disease. But we have a boundary line across the continent that leaves us exposed to contagion from the south. Should by any chance foot and mouth disease or any other contagious disease get to the north of the boundary, as it came nearly doing a year or two ago, and the fact became public property, immediately British ports would be shut against us, and instead of our cattle being allowed ten days to live on Britain's shore, they would not be allowed to land at all. Should such a condition arise it would be a national calamity. Cattle values would fall away below the profit line and the breeder of pure bred stock would have to go out of business. It is to be hoped that such a contingency will not arise, but we should be prepared for it should it come, and the way to do so is to provide facilities for slaughtering cattle at home and exporting the carcass in a chilled state to the home land.

The establishment of the dead meat trade on a scale that would be of the greatest advantage to the country is no small undertaking. Large capital and good executive ability are required to make it a success. But this country has taken hold of other industries of no less magnitude and made a success of them, such as the bacon trade, the cheese trade, etc., and what has been done in the one case can be accomplished in the other, providing the same energy and skill are put into business. As soon as large pork-packing houses were established, our people began to produce the bacon hog. In the districts where cheese factories were established and a market created for milk, farmers began to produce milk. So with the dead meat trade. Establish it on a large scale, and create a steady demand and profitable market for beef and our farmers will produce in larger quantities and of the quality desired.

Professor Day: At present, Canadian export cattle are bought by dealers months ahead of delivery. When so sold, the feeder has not the incentive to put the best possible finish on the animals: consequently the tendency is towards inferiority in the finish of the general run of our export cattle. In States tributary to Chicago—in which city there is a great dressed meat trade,—finished cattle are shipped by feeders on consignment to commission men. Consequently, American feeders have a direct incentive to put the best possible finish on their animals, and this tends towards superiority of product. I believe that if a dead meat trade could be established it would tend to overcome this difficulty as men could ship direct to the market. They would then learn the requirements of the market, which would tend to greatly improve our stuff.

JUDGING BEEF CATTLE. *(Illustrated).*

By G. E. Day, Professor of Animal Husbandry, O.A.C., Guelph.

In judging a beef animal it is desirable first to get an idea of its general appearance,—whether it is well balanced and of the blocky, low down, thick type so desirable for beef production. After you have ascertained in this way how nearly an animal conforms to the type desired, you may then proceed to examine the individual points of excellence. The animal we have before us presents almost an ideal form. She has good length, and thickness with it, carries good depth of body, is set on short legs, and more than that, she is smooth. In judging beef animals, we are particularly strict regarding the handling qualities, as we ascertain in this way whether the flesh has been put on smoothly. On some fat animals you will find a roll of fat on the ribs, and there will be hard and soft places. These ridges or rolls of fat indicate that the fat is bunched at that point on the carcass, and waste is the result. While an animal with a little too much fat is better for export purposes than a thin one, at the same time, the animal which is just right is better than either. Therefore smoothness is very desirable, and we try to detect its presence or the reverse in the handling of the live animal.

If we judged from a butcher's standpoint only, we should emphasize only those points which are of value in the dressed carcass. The butcher, of course, wants all back and hind quarters; but the breeder knows that good constitution is necessary to secure good feeding qualities. In order to possess this, the animal must have a good front, good depth, and plenty of heart room. No matter how good the evidences of constitution may be, however, we must condemn an animal that does not possess a corresponding depth and thickness of the parts that are most valuable for beef. In the most desirable butcher's animal the valuable meat is so well developed as to over-balance the less desirable portions.

In breeding classes, we sometimes allow the question of handling to run away with our judgment. In a young animal we should certainly be justified in being severe if there was any indication of patchiness, but with older animals we must be a little more lenient, because we often find that thick fleshed, easy feeding animals are inclined to run that way as they get older, a fact which is often their undoing in the show ring when it should not be so. I have seen animals of the thin fleshed, slow feeding kind, that held their smoothness so well that they obtained awards in the show ring over animals of greater merit, because the latter tended to bunch and become a little patchy. Smoothness is extremely desirable, but we most look for thickness of covering along with it.

Q. Does the head of this animal indicate good feeding qualities?

Prof. Day: It has a good feeder's head. It has good width of forehead, a short face, a good bright eye. It is a well proportioned head with nothing coarse about it. If an animal has a reasonably good head, I would not be too critical about it. This animal has a strong rugged type of head.

Q. What about her hair?

Prof. Day: There is lots of it and it is long and soft, with an under coat of fine furry hair. Her skin is also very good—rather thick, but for my part I do not object to that, so long as it is mellow.

Q. Does a long muzzle and a narrow head indicate weakness of constitution?

Prof. Day: Not always; but as a general rule they are not the best feeders.

Q. What about the bone?

Prof. Day: An animal with coarse bone is a little more wasteful. While fine bone is desirable, the breeder has to be a little careful in that regard, as with it there is danger of reduction in size. Provided an animal has size and substance, I would not consider fineness of bone a fault. It is dangerous to keep selecting for fine bone; it is safer to get bone of good quality and not unduly fine.

Mr. Smith: Although she is developed too much on beef lines to give indications of milking qualities, yet her dam came second in the dairy contest here two years ago with between 40 and 45 lbs. of milk per day, testing about 4 per cent.

An informal talk was then given on the dressed carcasses by A. W. Tyson and Prof. Cumming.

An interesting point brought out was that the carcasses of two animals which were of the same breeding, had been fed side by side, and were of the same age, showed a wholly different color, one being white in color and the other yellowish. Neither the producer of the cattle nor the butcher could give any explanation of the difference. Mr. Tyson said that it was a very common occurrence, however. The yellowish beef was not inferior, but people thought it indicated age and sometimes objected to it on that account.

REASONS WHY SHEEP SHOULD BE REARED ON EVERY FARM.

By John Campbell, Woodville.

The percentage of farms in this Province on which sheep raising cannot be made a profitable industry is very small indeed. There are a number of reasons why sheep should be kept on ever farm. Farming has changed wonderfully during the last fifteen years. We then sold our raw products direct. Now we have become manufacturers as well as farmers, and are putting a more finished product on the market. We are using animals as machines to increase the value of our farm products. I believe that through the sheep we can get more from the feed we grow than through any other animal. Ten years ago I ventured the statement that we could double the annual value of the farm products of Ontario by selling our grain in the form of live stock rather than in the raw state. What I then predicted has come to pass; our output has doubled. I do not believe there is any class of animal that can do more towards still further increasing the wealth-producing value of Ontario farms than the sheep.

The next point in their favor is that no class of live stock can be handled with so little labor, and one of the greatest difficulties on the farm during the last five years has been the question of labor.

The third, and perhaps the greatest point in favor of sheep, is their quality as money makers. There is no class of meat producing stock that can be prepared for market so cheaply as the sheep. The cost of producing mutton as compared with beef is altogether in favor of mutton. I am satisfied that you can produce 100 pounds of lamb at a cost of $1 to $2 less than it costs to put 100 pounds of weight on a steer when winter finishing is practised, and at the same time, the average selling price of well finished lambs in February and March has been from 75c to $1 per cwt. more than the selling price of export cattle in April and May.

Hon. Mr. Dryden: I think the farmers taking hold of sheep now will in a few years do much better than in the past with them.

Mr. Campbell: Swift's head buyer in Chicago is predicting a much improved outlook for the sheep business. An Ohio farmer told me that he had been nine years in cattle feeding, and only one year in that time had he made a good profit in that business. In a subsequent nine years in lambs he had failed to make a good profit only once. On one double-decked carload last year this feeder made a profit of $175. In fifteen years, with the help of lambs, he had cleared a mortgage from his place of $5,200, besides improving his farm buildings to the extent of $2,700. He can feed three lots of lambs in the time it takes to finish one lot of bullocks.

To draw attention to how sheep have been discarded in this country, I may say that yesterday morning I had a letter from a Hamilton firm that wanted a report of the sheep lectures here in order to put it in their circulars next spring. They state that a few years ago there was as much wool marketed in Hamilton as there is now in the whole country between Detroit and Niagara. The price of wool has advanced in the United States by ten per cent. in the last year, and it has advanced here also. When I was at the International at Chicago last week there were more enquiries for breeding stock than at any time since 1903.

Another point in favor of sheep is that the consumer is beginning to learn the value of mutton. There is a good deal of waste in beef cattle and swine. The lamb, however, is edible meat from neck to heels. Owing to that fact, and to the improved quality of the lambs placed upon the United States markets, the consumption of mutton is growing to a remarkable exent. The people of the United States, and to some extent the people of Canada, are becoming users of lamb and mutton, because of the good quality of the meat and the economy there is in it. Some yearlings have been sold at from 7c to 7 1-2c to go to the Waldorf-Astoria Hotel in New York from this show. This sale is the result of the satisfaction given by a similar purchase last year. These prices are one to one and a half cents higher than were paid at the International in Chicago last week.

"Coming events cast their shadows before," and during my 25 years' experience in sheep raising, I have never seen so clear a shadow of what was coming as I do now. Many, although they see these things, hesitate to take hold. After a while they get faith enough, and dip in just when the turn is coming, and lose money in consequence. Those who want to get the best out of the business must start now.

Because of the higher scale of comfort in farm houses, farmers spend twice as much on their living as they did twenty years ago. To meet this increased cost, they must increase their revenue. There is no means by which their revenue can be so easily increased as by adding to, or creating a flock of sheep. The time to do this is now, so as to obtain the advantage of the good prices for mutton that are promised for the next four or five years.

WINTERING BREEDING EWES.

By A. W. Smith, Maple Lodge.

In my remarks I wish particularly to refer to the feeding and care of the breeding flock during the winter. To be successful you should start wintering the flock about the first of September so as to have the sheep in good condition when winter really does set in. If hard weather finds the sheep in poor condition, you have a different problem before you. In order to have the flock in the most profitable condition when winter sets in we require to

have a supplementary crop—something that does not come in the ordinary rotation. For this purpose there is nothing better than the second crop of clover, but as we cannot depend upon having sufficient of it, we find it desirable to have a considerable proportion of the ground that is to be devoted to roots or corn the following year, sown with rape. Rape is, I find, the most satisfactory crop for this purpose we can have, apart from second growth clover. I prefer clover for the reason that when you feed a flock of ewes on rape they are apt to scour more or less. I do not wish it to be understood that we feed rape alone; we always allow sheep on rape the run of some other pasture such as clover or grass. Rape will stand frosts better than clover, which is a point in its favor. Frozen clover does not have good feeding value.

As to winter provisions, if you have a reasonable supply of clover hay and a liberal supply of pea straw and some roots, you will have no trouble wintering your ewes without grain, and you will greatly reduce expenses. Mr. Woodward's method of feeding roots would be inadvisable for an ordinary flock of breeding ewes in Ontario.

Feeding a large portion of roots before the ewes lamb would be almost certain in Ontario farms to decrease the lamb crop, and the lambs would not be as vigorous under such conditions. I would place the amount at about four or five pounds of roots per ewe per day for any of the larger breeds. That would be the limit. I find that in feeding four pounds per day to breeding ewes there is not much danger of injuring the lamb crop, and it is of much benefit to the ewes.

Just before lambing time, a small quantity of grain should be added to the ration to increase the flow of milk. I find it of advantage to feed pea straw outside. It gives more exercise, and exercise and lots of fresh air is very profitable to a flock of ewes. I like my ewes to be outside as much as possible. Mr. Woodward on the other hand keeps his in. If we kept our ewes housed up in winter, and the temperature of the building was at all high, we would not have a very valuable flock in the spring. I aim to have them outside as much as possible, sheltering them only from bad storms and in that way they retain their health and vigor.

W. A. Dryden, Brooklin: Mr. Woodward spoke of feeding his ewes all the succulent food they would eat in the way of silage and roots. We find we cannot do that. If we give a fair quantity of clover hay and just a little less roots than they care to eat we have a healthier flock of ewes and a better crop of lambs.

I agree with Mr. Smith, and should like to emphasize the point, that ewes in lamb, in winter should be allowed all the outdoor exercise they will take. We feed them inside, but the door is always open except in a bad storm.

Q. Have you ever fed silage?

A. Yes; but never successfully, and we have given up the use of it for the time being. I think the trouble was that the silage was sour, which caused the lambs to scour.

Just before lambing time, we feed a small quantity of grain, usually oats, which we think has the effect of making the lambs hardier and stronger upon their feet. We feed the lambs a little grain as soon as they will take it. We provide them with a creep, and put in a few roots there to start on, and a few oats. With this feed and their mothers' milk, the lambs do well and we lose very few of them. When the lambs go upon the grass, we provide a small pen in the corner of the field where they can get a little grain.

Q. What kind of grain do you give?

A. Oats, a little bran, and sometimes oil cake. The oats are fed whole.

Q. Do you think it desirable to feed ewes crushed grain shortly after lambing?

A. We find that the sheep will crush the grain themselves.

Q. Have you tried crushed corn?

A. We never feed corn, nor do we grow lambs for market. What I have said refers to breeding stock.

Q. At what time do your ewes drop their lambs?

A. We like them to come about March.

Q. When do you shear the ewes?

A. As soon after the lambs come as possible. We shear once a year, in the spring.

Q. Do you use a machine?

A. Yes, a hand machine.

Q. What should be the treatment of the ewes immediately after lambing.

A. The only time there is any trouble is when the lambs come weak, when you must help them along.

Q. Do you recommend holding off the feed immediately after lambing?

A. Yes, for a little while.

Q. Have you any difficulty in getting lambs to eat roots.

A. Not unless they are sickened by feeding too many at the start. They should always get less than they want at the beginning.

Q. Do you pulp roots or feed them whole?

A. We pulp them for the lambs and slice them for the ewes in winter.

Q. Do you feed many mangels?

A. Not a great many.

Q. Ever had any bad effects from them?

A. Never fed enough to know.

Q. Have you had any experience with sugar beets.

A. We find that they do not give good results fed to breeding male animals.

Hon. John Dryden: There is nothing better for sheep in this country than the Swede turnip and we stick to them. We have never fed mangels because the turnips last till grass comes.

Q. Why do you slice turnips for breeding ewes?

W. A. Dryden: If they are pulped the ewes will sometimes gulp them.

Q. Does your shearing machine work well?

Hon. John Dryden: We consider it one of the greatest labor savers on the farm. A boy of 16 will turn the machine for ten hours per day, and with a man to shear you could clip forty sheep.

J. G. Hammer: There is no doubt that the machine will do a perfect job. The only objection to it on this score is that it clips sheep too close for winter shearing. Two men with shears will clip from 25 to 30 sheep per day each, and thus do more work than can be done by the machine.

Q. I have never used either roots or silage, but feed bran for six weeks before the ewes lamb; is bran all right?

Hon. John Dryden: It is all right, but some cannot get bran.

Q. Is it not desirable to dip the flock before winter starts?

W. A. Dryden: Sheep should always be dipped before going into winter quarters, otherwise ticks will eat up a lot of food.

Q. Have you had any experience with sheep bloating on rape?

Mr. Smith: We always take the precaution of putting the sheep on rape when they are full; we also see that the rape is dry, and allow the sheep access to other feed. If you allow sheep on rape while it is wet, there

is danger of bloat; or if they are very hungry and eat greedily at first, there is danger. The lambs as a rule will eat but little rape for the first day or two. I have known lambs' ears to drop off when they were confined to rape and nothing else. The ears will first swell and then drop off.

Q. What should be done in case of bloating?

JOHN CAMPBELL: There are two remedies for bloating. First a heaping teaspoonful of baking soda stirred into a pint of warm water. Second, two or three ounces of raw linseed oil and two teaspoonsful of turpentine, the mixture to be well shaken up.

WINTER LAMBS.

BY J. S. WOODWARD, LOCKPORT, N. Y.

In my younger days we used to feed mature sheep, buying wethers from Michigan weighing from 90 to 100 lbs. These we fed for about 90 days. We did not know how to feed for longer than that safely. If we could make them gain 20 lbs. we thought we were doing remarkably well, and could make money four years out of five. That time has gone by, and any man who attempted to do that to-day in Western New York would be certain to fail. We have drifted into a different class of sheep feeding; we feed lambs coming one year. In my own case we raise winter or "hot-house" lambs. I am one of the pioneers at the business in Western New York.

There are certain conditions necessary to success in winter lamb raising. First you must have the right kind of a market, that is, a market that calls for winter lambs. You require a market in which there are a large number of men of unlimited means who are prepared to spend their money on good living. There is no market in the world for winter lambs that is quite equal to the New York market, because New York has a larger proportion of that class of men than any city in the world. But any large city with wealthy men who love good living will use a limited number.

The next essential is that the man who engages in this business should be adapted to it. Not one man in a hundred has the necessary qualifications. It is a most exacting business, and not half a dozen of my neighbors are to-day following it, although lots of them went into it. A man must be first of all observant, and able to distinguish sheep by their faces as we do human beings; he must be a man who is willing to give his whole attention to the business; willing to get up nights and sit up nights, and do everything necessary to make it a success. In the lambing season we keep a man in our barn from 4 in the morning till 11 at night, and then somebody gets up about 2 or 3 o'clock and goes to the fold to see that everything is all right. It is necessary that such a man should have a kind and gentle disposition. I would not have a swearing man in my sheep barn, because all such men are likely to be quick tempered. No matter what sheep do, they must be handled carefully and kindly, just as though you loved them.

The folds must be adapted to the business. I know some men talk about growing winter lambs out doors. I cannot do it. My sheep are housed as warm as this lecture room, and they never go out. The quarters are light, warm, well ventilated, and above all things, *dry*. The air is pure and good and the sheep are as happy there as in a June pasture. We do not care to have too many sheep together in a pen so that they run over and crowd each other. Our pens are about 18 feet square, and we never put more than 20

ewes and lambs in such a pen. We have a "creep" where the lambs can go by themselves to be fed, and we give them all they will eat.

We always expect to have some lambs ready for market at Christmas, and we have not failed in fifteen years. When I left home we had fifty in our folds, and more coming right along every day.

We tried a great many breeds for the lamb business, and I have found that a Merino ewe crossed with a Dorset ram produces the most satisfactory lambs for this purpose. We want a lamb that will fatten quickly. A lamb that will weigh 25 lbs. and have kidneys as big as your fist, will sell better and for more money than a 40 lb. lamb with a kidney only as big as a walnut. We find that the Merino ewe will get a lamb that will fat and be ready for market sooner than any other breed. The pure Dorset, on the other hand, will not be as fat although it will weigh more at a given age; but it is the fat lamb we *must* have. The value of the Dorset male is his activity. With Dorset, Hampshire and Shropshire rams once running with a flock of ours, out of the first fifty lambs obtained, forty showed Dorset breeding.

The sheep are put up early in the fall, and the ewes are sheared, and it is therefore absolutely necessary to have the pens dry, warm and well ventilated. These ewes will have lambs ready to market by Christmas. We begin to feed the ewes directly they are in their winter quarters, and we find that if we give plenty of succulent food, there is no danger in feeding the ewes grain before they lamb. The ration consists of silage, clover hay, bran, more or less corn, and oil meal. The ewes are thus kept strong and thrifty, and have plenty of milk, and when the lambs are dropped they are ready to grow. Sometimes we feed distillers' grains. We feed for the largest milk production. Unless you feed plenty of succulent food, the milk will be too constipating and the lambs will be unthrifty. We therefore feed the sheep all the silage they will eat, and in addition give them roots for variety, and the more silage and roots they will eat, the better we like it. I do not think it would do to feed so much roots and silage if they were running out in the snow, but of course ours are kept in warm quarters.

We teach the lambs to eat just as soon as possible, giving them something that will supplement the milk of their mothers. The first lot of lambs—those that go to market at 10 or 11 weeks old, are the most difficult to fit, after that we allow them to suckle more than one ewe, which they will easily learn to do. About the first thing they learn to eat is new process linseed meal out of which the oil has been washed instead of pressed. As soon as a few lambs are induced to eat, the others will quickly learn from them. We follow this with a little dry barley, and presently with a little cracked corn, then mangels. You would be surprised how many mangels they will eat if they are fed in the right way. If sliced and put in the troughs they will not eat many. If you arrange it so that the lambs can stick their heads through the fences, and then place mangels on the outside so that they imagine they are stealing them they will eat a lot of them right along. If we have not ewes enough to suckle the lambs we provide a cow or two and feed the lambs a little extra milk. Sometimes we put an additional ewe in stanchions, where she is held fast and the lambs can help themselves as they desire.

We send our lambs to market dead. We bleed them and dress hog fashion; that is we skin the head, legs and down in front to the brisket, disembowel them and dress as far as skinned; cut a small hole in the proper place on each side of the caul and pull the kidney through, so as to show to the best advantage. They then weigh from 25 to 32 or 33 pounds and bring from $6 to $10. It is impossible to over-stock the New York market about the middle of February, but it is easy to overstock the Christmas market.

Q. Do you feed cow's milk whole or diluted?

A. It is fed fresh and warm direct from the cow.

Q. What do you do with the ewes after you take the lambs off; how do you dry them up?

A. Those we want to keep over, we withdraw the succulent food from them and dry them up gradually. The others we fatten and send to market.

Q. What weight would the fleece be per sheep?

A. Dorsets shear from six to eight pounds; Merinos sometimes will shear ten or twelve pounds. We do not wash our sheep. We find that the ewes do better shorn. If they are not shorn the lambs will pull the wool, which is not a good thing. We find that ewes give more milk in the winter than in summer.

Hon. Mr. DRYDEN: No one ought to wash sheep.

Mr. WOODWARD: No, it is a barbarous practice. We do not submit to any deduction for unwashed wool. We have wool enough to send to the wholesale market, where it is sorted and sold on its merits.

Q. Do you ship your lambs to a commission man?

A. They are sold largely on orders. Occasionally we send them to a commission man to see if our customers are dealing fairly with us.

FEEDING LAMBS.

By Jos. E. WING, MECHANICSBURG, OHIO.

Feeding lambs is the main business at our farm—to grow and feed lambs, and to grow feed for them. We put our eggs into that basket, and then watch the basket. When we first started in the business we purchased part of our food-stuffs, wheat bran, oil meal, but soon found that these were continually increasing in price, while the price of lambs was steadily going down. We concluded, therefore, to raise all the food on the farm, and provide the necessary protein in that way rather than to buy it. We therefore took to growing clover and alfalfa, and found that it made just as good lambs as linseed meal and wheat bran; not quite as quickly, but just as good, and much more profitably.

Our method in feeding lambs is as follows—I am simply going to tell you how we do it, as I realize that what may be suitable for Ohio may not be suitable here. We buy our lambs as we cannot get ewes enough to raise as many as we want. We feed from 1,000 to 1,400, and have only 320 acres of land. When we get them home, we take it for granted that they are infected with scab, and therefore they are dipped first thing, that is, before they go into the barn. We then know that they are free from ticks and scab. We buy small lambs, and they are poor and weak when they come from the railway. We do not try to feed them grain at first, but put them in the barn basement which is very cool and airy. While they are resting we feed after a week or so, as their strength and digestion returns, and then we begin to feed them grain. We open the silos, and spread a little silage along in the boxes with hay on top. We do not give them much at first, as our rule is never to make a sudden change. We increase the amount gradually. The racks are simple boxes with slats wide enough apart for them to push their heads right through. In December, we begin to feed grain. We do not grind or shell the corn but feed it on the ear. The lambs love to shell the

corn themselves, and it saves us money. At first we break the ears into pieces. We place the ears in the rack and put in hay on top. Before filling the racks we drive the lambs out of the barn. We have racks enough for every lamb to stick his head in and feed at the same time. We want them all to eat at the same time; further than that we do not care whether they have any spare room at all. We have 700 in one pen and 350 in another. If it were as convenient for feeding and sheltering them I would just as soon have them all together.

We start feeding them three ears of corn apiece, and do not increase the amount until the lambs learn to like it. When they will eat it greedily, we gradually increase the amount, but so slowly that their capacity for digesting it grows in the same ratio, until February or March they are getting three bushels to the hundred head. Late in March we shear them clean, and if stormy weather comes, we shut the barn up somewhat. We hold our lambs till most people have marketed theirs. When they are put up they weigh from 45 to 50 lbs., and by spring they will weigh from 85 to 90 lbs. with the wool on. They cost us from 3 1-2 to 4 1-2 cents, and we sell them at about $6.50 a hundred sheared.

But the great advantage in feeding lambs is in the manure secured. We grow only corn and alfalfa on our farm, and we have been enabled to increase the productiveness of the land more than four fold.

Q. Do you cure the alfalfa thoroughly?

A. Yes, and cut it when it is just coming into bloom. Then the leaves are all on and the lambs relish it better. I would rather feed lambs on alfalfa hay alone than on corn and any other hay I ever tried except clover. Red clover will do almost as well, but anyone who has once tried alfalfa will stick to it.

Q. What breed do you prefer?

A. I would rather have black-faced lambs than any others for this kind of feeding. We have some ewes on the farm all season, and like these to be Dorset because we market their lambs fat from their mother's milk.

Q. How much silage do you give?

A. About 2,800 lbs. to 1,000 lambs at present—per day I mean. We find that the lambs seem to like other things better when they get silage. Perhaps the trace of acid in it aids digestion. Of course there is plenty of nutriment in it also.

Q. They will not do well on it alone?

A. We always feed dry grain along with silage; never feed it alone.

Hon. Mr. Dryden: Mr. Wing probably does not understand our circumstances. His silage would be better than ours as the grain gets riper. We cannot produce corn for the silo and have the ears fully ripe before frost comes. Our silage is not as perfect as his, and we have to feed it a little more carefully.

Mr. Wing: I pick off the seed corn when I cut the silage, so you will know what stage it has reached.

Q. Would not turnips take the place of silage?

A. No doubt, but I can grow silage much more easily.

ENGLISH BREEDS OF SHEEP; THEIR ORIGIN AND THEIR ADAPTABILITY TO CANADIAN TERRITORY AND CONDITIONS.

By F. W. Hodson, Live Stock Commissioner, Ottawa.

Environment, continuity, utility, and crossing, are words commonly found in the English language, but not properly appreciated generally by farmers and breeders of live stock in Canada. In Great Britain they are more generally understood, and in the United States farmers have for sometime appreciated the worth of the principles indicated by each of these words. Let us consider them in the order in which they are given.

Environment—When a Canadian farmer is commencing business how seldom is it that he thoughtfully considers his environments, and determines the best uses he can make of his land? For instance, a man owning a farm near Toronto, or any other large city, where the land is worth $200 per acre would not find it highly profitable to make his chief output stocker cattle, nor would beef cattle give the best returns. Dairying conducted in the best possible way would give better returns, because his product could be put on the market fresher and better than that of parties living more distant. The fresh milk trade would suit his purpose better than any other line of stock breeding. Dairying probably would not pay him as well as market gardening. The same reasoning holds good in connection with stock farming. A man in commencing business as a stock grower should carefully consider his environments. What class of stock is likely to give him the best returns both for the present and at the close of his business career. Is his farm best suited to the production of horses, cattle, sheep or swine and if so what breeds are likely to give the best returns. He can only know this by making a careful study of conditions. In Great Britain we find the environments have been very carefully studied and the breeds developed that are best suited to the districts. Each of the various sections of Great Britain have breeds of horses, cattle, sheep and swine peculiar to those districts. Why is this? Is it because some prominent farmer in the district has at some time seen something somewhere that took his fancy? It is because the British farmer is farming to make money and not to satisfy a whim. He has chosen families bred in the district that are best suited to the requirements of his soil and markets, and has carefully improved these by selection and the use of the proper sort of males, always keeping in mind his environments. For this reason in Shropshire we find nothing but Shropshire sheep. In the North of England and the south of Scotland, the Leicester families prevail. Farther up in the hill country we find the Cheviots, and again in the higher and more barren hill country we find the Highland or Black Faced sheep. In other parts particularly in the southwest of England we find the various classes of Downs, and other breeds which have each proved through succeeding ages, the best suited to the districts. What has been the practice of the Canadian farmers generally speaking? Without any regard to environment he has chosen something that caught his fancy, bred it a few years and perhaps found it unsuitable.

Continuity—The next important word is continuity. Here again we may learn a lesson from British methods. The British farmer having learned what his environments require has continued year after year, generation after generation producing the same families of the same breed on his farm, being extremely careful about crosses. This is true of whole regions. It is not an

infrequent thing to find a farm on which Leicester sheep have been bred for perhaps from sixty to one hundred years, nor is this true of Leicesters alone, but applies to all breeds of British live stock. Messrs. Mansell, of Shrewsbury, Shropshire, Eng., who have attained fame as breeders of Shropshire sheep have been continually breeding the same family on the same farm for upwards of sixty years. Other families of British farmers have continued in the same line for a much longer period.

Utility—Utility is another word that should be always foremost in the mind of the stock breeder. Why are we breeding sheep? That they may produce the greatest quantity of the best quality of wool and mutton for feed consumed and care given. This is an important consideration. Though we have acted wisely concerning the choice of the breed and have continued our efforts along the same line for a considerable period, if we do not keep in mind the utility of our animals our efforts are likely to come to naught. Too much attention has been paid to fads and fancy and not enough attention to the utility of the animal. The motto: "The greatest quantity of the best quality" has been frequently lost sight of, and greater attention paid to the production of fancy points of which I will speak when dealing with the individual breeds.

Crossing—Crossing is another feature of breeding very much misunderstood in Canada. In Great Britain it means the selection of ewes of a certain breed which are crossed with a male of another breed in order to produce market lambs, but the produce of this cross is never used for breeding purposes. For instance Cheviot ewes are sometimes crossed with Down rams and sometimes with Wensleydales and others of the Leicester families in order to produce lambs with better feeding and better selling qualities than the pure-bred Cheviot. But in order to keep a constant supply of Cheviot ewes, a certain number of the best ewes are mated with the best Cheviot rams. These are kept for breeding purposes, while the half-breed ones are sold to the lowland farmers for fattening purposes. No British breeder thinks of using these cross-bred animals for breeding purposes. Why not? Because hundreds of years of experience have proven that the best results cannot thus be obtained. It is not necessary for me to explain why. Experience has taught that such is the case. The experienced breeder or any other thoughtful man who has studied the conditions knows why.

Canadian farmers have frequently given no consideration to environment, and have not made continued effort along any particular line, but have chosen a breed, bred it a year or two, and not being satisfied with the result have crossed it with some other breed, not being satisfied, have again crossed with another breed, and so on, until in the end the resulting flock has been of such a nondescript and irregular character as to be of no value to the breeder or the feeder, and of little value to the butcher and an absolute injury to the mutton market where they have been sold. In order to obtain the best results environment must be studied, efforts must be continued along the one line, utility must always be kept in view, and miscellaneous crossing must never be done except for a special purpose and then the offspring must always be fattened and sold. In this way the flocks of Canada will be firmly established upon a proper basis and we will receive the greatest profit for feed consumed both in wool and mutton. Canadian mutton will then become as famous and as much in demand on the English market as Canadian pork is to-day. No country in the world is capable of producing better mutton sheep than Canada.

Then followed a description of the various breeds of sheep illustrated by stereopticon views.

JUDGING MUTTON SHEEP. (*Illustrated*).

By J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa.

There is no doubt in my mind that if the consumer could procure the best class of mutton—the best sheep fed in the best way—the consumption of mutton would materially increase. As it is, the consumption of mutton is increasing year by year. We have here the carcasses of some of the best fed lambs Canada can produce. Using them let me illustrate the various cuts and their value. As a general thing, the Chicago market will pay 9c. for the leg, 6c. for the loin (chop), and 10c. for the rib cut forward of the loin, which is known as the "hotel rack." The Canadian market will pay 10c. for the leg, 9c. for the loin, and 9c. for the rib. The rib may be termed the hotel part of the sheep, and the leg the family part. The leg and loin should be as fully developed as possible as there are specially valuable parts. It is very difficult to determine when the animal is alive whether it has a large proportion of lean meat, at the point known as the "eye," except that elasticity in the back is an indication of it. In order to secure juicy meat, there must be sufficient fat on the carcass, but it is not economical too have too much. On that account, lambs are generally more acceptable to the housewife than mature sheep. A large development of fat at the point where the tail joins the body is a decided objection, as it indicates that the animal is inferior as a producer of lean meat, and indicates too much fat all through the carcass.

From the feeders' standpoint, constitution is necessary in the animals he feeds. An animal with a good constitution will have good width between the legs, will be well let down, that is will have a prominent brisket. This will include the inferior cuts, and yet without proper development of these parts, you cannot have the superior cuts well developed. The back should have a uniform covering of firm, elastic flesh, and there should be a good development of flesh on the leg, inside as well as outside.

To Mr. Campbell: "What value do you place on the covering of the head, say of the Shropshire, so far as mutton production is concerned?

Mr. Campbell: I should say it is if anything rather against mutton production than in favor of it. With an excessively covered head you are apt to get a raw back and light leg. At the same time, those who have been very careful in selection have been able to combine these two things within recent years. Any breeder should guard against being carried away by fancy points at the expense of utility.

Considerable discussion followed between Mr. Tyson, who with Mr. Cumming, judged the carcasses, and Mr. John Campbell who produced the carcass that took second place in its class. Mr. Tyson said that the principal reason for giving the Campbell wether second place was because of the excessive development of fat at the tail. Mr. Campbell pointed out that in spite of this fact the carcass showed an exceptionally large "eye" of lean meat, and that the excess of fat at the tail was more than offset in the other carcass by the excess of fat in the kidney. Mr. Tyson also contended that the Campbell wether was too fat all the way through. The main difference between the parties seemed to be a repetition of the controversy that had been heard at previous shows The American market, which Mr. Campbell has in his mind's eye, will take much fatter meat than will be taken in Canada. The American consumer is willing to stand the loss involved in the cutting away of fat, in order to secure greater quality and juiciness in the lean meat.

RESULTS OF SOME RECENT EXPERIMENTS WITH BACON HOGS.

By J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa.

We are constantly receiving inquiries at the Central Experimental Farm as to the best method of raising hogs, and we are often asked as to the best method of raising young pigs after they are weaned. It is well known that the best plan is to give them plenty of skim milk, but as the bacon industry has grown, the quantity of skim milk available has not increased in proportion. Consequently many farmers find themselves unable to follow this plan, and the young pigs have to be reared without it. We have been conducting experiments with mixtures, which according to composition, should take the place of skim milk as nearly as possible. We selected for these mixtures materials that are everywhere procurable and as low in price as possible. The pigs were all fed in pens in winter, and it is more difficult to raise young pigs in winter than in summer.

One lot were fed on shorts and skim milk, which we consider an ideal ration. On this ration they gained 4-5 lbs. per day and gained 100 lbs. on 152 lbs. of meal and 554 lbs. of skim milk. Valuing the shorts at 95c. per cwt. and the milk at 15c., these hogs made gain at the cost of $2.21 per cwt. When they were put on heavier foods for finishing, they made gains right along, having had a good start.

Another lot were fed shorts and gluten meal in equal parts. This is a good food for milk or beef but apparently not so suitable for pork, and the results in this case were not satisfactory.

A third lot were fed 400 lbs. of shorts and 100 lbs. of oil meal. Where there is no skim milk, this is about as cheap a feed as can be used, and has a good effect upon digestion. With 280 lbs. of this a gain of 100 lbs. was made at a cost of $3.22 per cwt.

A fourth lot, fed oats and ground oil cake, or oil meal, made 100 lbs. of gain on 322 lbs. of feed at a cost of $3.70 per cwt. This feed is objectionable unless the husks are removed from the oats, or the oats are very finely ground.

A fifth lot were fed on a combination of oil cake shorts and oats mixed, and to this was added equal parts of skim milk. These hogs gained at the rate of 2-3 lbs. per day, and made weight at a cost of $2.94 per cwt.

From these experiments we may conclude that where no skim milk is available, shorts and oil meal will come very near it, and is as cheap a mixture as can be got.

We also conducted a series of outside experiments last winter—which was a very severe season with us,—feeding practically the same feeds as were fed inside, and the pigs did very well.

Where we fed a mixture of meals and skim milk, we were able to make gain at the rate of $3.82, or nearly double what inside feeding cost with the same ration.

Where we fed shorts and oil meal the cost of 100 lbs. of gain was $5.52, and the rate of gain per day was less than those fed inside. We may conclude therefore that the cost of producing a pound of pork outside where no shelter is provided is nearly double the cost of producing it inside, and that protection is essential for the production of cheap pork.

In another experiment we contrasted the feeding of pigs (1) on pasture, and (2) in pens, with and without green food. We have carried on a number of these experiments and find that in almost every case pigs on pasture will not gain as rapidly or as economically as when they are in pens. I regret

this personally as I think that pasturing pigs is the most pleasant way to keep them. In this experiment, one lot was fed in a yard 20 ft. x 30 ft., on a meal ration. These made gains at the rate of 1 1-4 lbs. per day, at a cost of $4.30 per 100 lbs., or ten cents less than those fed in the closed pens. Another lot, fed meal, with a run of a quarter of an acre made gain at a cost of $4.21 for meal alone. In the pen experiments, the small amount of green food added somewhat to the speed with which flesh could be put on, but otherwise does not make much difference.

There are a number of stock foods on the market, and we have been receiving a number of enquiries regarding them. In an experiment with these foods, one lot was fed 482 lbs. of meal and 22 lbs. of Anglo-Saxon Stock Food in making 100 lbs. of gain. This stock food cost 10c per pound, and the total cost per cwt. of gain was $6.22. These pigs gained at the rate of 1 lb. per day.

Another lot fed 437 lbs. of meal, and 11 lbs. of International Stock Food in making 100 lbs. of gain, cost $5.47. They gained at the rate of 1.925 lbs. per day.

A third lot was fed 393 lbs. of meal and 11 1-2 lbs. of Herbageum, the latter costing 12c. per lb. to produce 100 lbs. of gain, the cost being $5.31.

A fourth lot fed 399 lbs. of meal and 68 lbs. of sugar and flax, made gains at the rate of 1 1-3 lbs. per day, and cost $6.03 per cwt. The sugar and flax mixture is composed of flax-seed meal and the honey locust bean ground together and sells at $3 or $4 per cwt.

The results so far indicate that the stock foods as economical pork producers are not to be recommended. Still I will not say they are never to be used. Where hogs are unthrifty a small amount is a good thing, but it will not pay, so far as our experiments show, to keep hogs on it for 90 days. For a short time, it may pay, as in every case the pigs did exceedingly well for two or three weeks, but after that they began to tire of it, whereas those on meal kept right along and did uniformly well from beginning to end.

Our analyses of these products show that they contain principally bran, oil meal, and salt. One food that costs ten cents per pound contained ten per cent. of salt. They also contain more or less aromatic and tonic substances, but the price charged is apparently a good deal higher than the cost of the ingredients.

Professor M. Cumming, O.A.C., Guelph: We have been conducting at the College experiments very similar to those outlined by Mr. Grisdale in an endeavor to find out a satisfactory substitute for skim milk in pork production. At Guelph, tankage and blood meal were used for the purpose. Tankage is a by-product of the packing-houses and is composed of blood and entrails, purified, and made into a meal. It is imported from the United States, as none of our own packing houses give us a sufficiently refined product, it nearly all being sold for fertilizing purposes. Blood meal and tankage are very concentrated foods, and in the United States, where corn is fed almost entirely, they have given very satisfactory results, as being highly nitrogenous they nicely balance the corn ration.

In our experiments the meal ration consisted of middlings, barley and oats, with a little cut green feed added, the proportion of barley being double that of oats at the latter stage of the experiments. The meal was valued at $18 per ton and the milk at 10c per cwt. The following is a summary of results:

1. Two parts of skim milk to one part of meal made 100 lbs. of gain at a cost of $2.70.

2. A ration consisting of one part of tankage, costing $30 per ton, to ten parts of meal, made up as above, made a gain of 100 lbs. at a cost of $3.72.

3. One part of blood meal, costing $50 per ton, to ten parts of the grain ration, made 100 lbs. of gain at a cost of $4.06.

4. Meal alone made 100 lbs. of gain at a cost of $3.70.

5. A mixture of rations, the proportion being 1 lb. milk, 1 lb. meal to one part in fifteen in tankage; hogs so fed made a gain of 100 lbs. at a cost of $3.50.

An experiment was also conducted in inside and outside feeding. One lot, pastured first on clover and afterwards on rape and given all the meal they could eat, cost $4.65 per 100 lbs. of gain.

A second lot, fed two-thirds the amount of meal, made gains at a cost of $4 per 100 lbs.

No allowance was made for the cost of the green food in making these estimates. The results of these and other experiments demonstrate that we have not been able to feed hogs as economically outside during the summer as we have inside.

Q. What were the breeds?

A. Yorkshire grades, some with Tamworth and others with Berkshire blood.

Q. Would you recommend barley before peas?

A. Nothing is equal to peas, but we cannot grow them at present.

Q. Have you ever tried butter-milk from the creamery?

A. Yes; we found it about equal, pound for pound, to skim milk.

Q. Is skim milk not worth more than 10c per hundred compared with middlings at $18.

A. It depends on the proportion in which you feed it. If you feed a larger amount of skim milk you will get proportionately smaller returns from it and it will not be worth as much.

Q. What is the difference in the cost of finishing hogs in six months and eight months?

A. Generally speaking, the earlier you mature animals the cheaper the gains; further than that I cannot say.

Q. What do you think of whey as a substitute for skim milk?

A. It is not worth as much as skim milk; not more than half as much, if that.

Q. Contrasting light and heavy meal rations to hogs fed inside, which gave the better result in your experiment?

A. Those on the lighter meal ration, fed some green food such as rape, made the cheaper gains. To keep young pigs going, you must feed them as much as they can eat. As they grow older you can cut down the meal ration, and equal parts of meal and green food or roots will then answer very well.

Q. Will well cured silage take the place of rape?

A. For feeding to mature pigs of 140 to 150 lbs. it will do almost as well, and they will eat it as well if a little meal is mixed with it.

Q. What about Swedes?

A. They ought to be cut or pulped to give the best results; they are better still if cooked. Pigs will eat mangels without cutting.

WEIGHT LIMITS OF THE IDEAL BACON HOG.

By Dr. F. J. Smale, Toronto.

My subject sounds somewhat indefinite, and may not seem on the face of it of general interest, but I believe you will agree before I am through, that this question of the weight limits of the ideal bacon hog is of very great interest to farmers, breeders and keepers of bacon hogs.

The weight limits of the bacon hog and the insistence on such limits always promotes more or less irritation on the part of breeders of hogs, who are inclined to have regard rather to type than to the weight of the hogs they produce. It is a subject of very great importance to farmers, because of recent years, more particularly perhaps during the past year, there has been a tendency on the part of breeders and farmers to hold hogs until over finished in order that they may have the advantage of a rise in prices, which may seem probable in the early future. In doing this they are neglecting a cardinal principle in business success, whether in the bacon industry or any other manufacturing industry. To succeed in any line of manufacture it is necessary to study the requirements of the market as regards the kind of package in which the goods are favored and so far as may be, adapt your goods to the requirements of the market. To do this means success; failure to do this means, either that someone else will gain your trade or that your goods will be sold at a sacrifice. Suppose, for instance, you are in the habit of buying tea in pound packages, and someone else insisted in supplying you with 20 lb. caddies. If you take the latter at all, you will make your own terms as to price. That is what happens on the English market when, instead of supplying them with a bacon that suits their requirements, we insist upon supplying them with an article that suits our convenience to produce.

In this Province we have pretty well solved the question of bacon breeds. I think I am safe in saying there were never as many well-bred hogs in the Province as at the present time. I think I am safe in saying that the farmers of this Province have the knowledge necessary to enable them to produce hogs that are neither too long or too short, too fat or too lean, too soft or too hard, in short all the knowledge necessary to produce what is often termed "the packer's ideal." If we have this knowledge, if we are producing in the main a fair average of the type of bacon hog, if we are curing a bacon that suits the requirements of the English market—and I think that I can safely assure you that there was never a time when we were supplying an article that met the English taste better, if in all these conditions we have fairly well met the requirements of the trade, you may quite properly ask me, what is there that we yet lack? This brings me back to the point I raised earlier, we are lacking in this one thing that we are not suiting our bacon package to the requirements of the trade.

To be a little more specific: The bacon hogs consumed in England come from the following countries in approximately these quantities: The United States sends the products of from 60,000 to 70,000 hogs every week: Denmark from 30,000 to 40,000; Canada from 25,000 to 30,000; Ireland from 20,000 to 25,000; the rest of Europe, 5,000. Besides this, England herself produces a considerable number of hogs; but the exact number is not easy to determine. Leaving out of account the English production of hogs, the United States supplies 2-5 and Canada 1-5 of the bacon that reaches the English market. These two classes of bacon, American and Canadian, are not strictly competitive; they go to different trades. The American bacon is con-

sumed principally in the north of England, and the Canadian is consumed in the south. The dividing line is about fifty miles north of London or say on a line with Oxford. These two classes of bacon differ very markedly both as to cut and quality. American bacon finds its way to England in the shape of hams, backs, bellies and shoulders, and usually, as compared with our own, it may be classed "fat." Canadian bacon finds its way to England in the shape of whole sides; the head, feet and backbone are removed, but apart from this it is the whole side of the hog. It is known as the Wiltshire side, and is in the main lean. These two clases of bacon influence each other's prices to some extent but only in the same way as the price of oats will effect the price of barley if the price is abnormally low. The price of barley under such conditions will undoubtedly be affected because more oats will go into the consumption causing a decreased demand for the barley and a lower price. Denmark and Ireland, however, send bacon to England that is strictly competitive, and as already mentioned, the competition of Denmark is most to be feared. For a good many years we have been in the habit of gradually creeping up on the production of hogs in Denmark. From a production that numbered probably 2,000 hogs a week in 1890, we have steadily increased in Ontario to 25,000 or 30,000 per week. Up to eighteen months ago we were steadily improving our position in regard to quantity, but since the Danes have increased the quantity of hogs marketed from 20,000 to 30,000 hogs per week to 30,000 to 40,000 hogs per week; that is to say, they have improved their position as regards quantity by nearly fifty per cent., and that at a time when Canadian production has remained stationary. In addition to the many excellent reasons adduced by Professor Day, I should like to add this further reason, that they have suited their package—the weights of the bacon they market—to the requirements of the English consumer.

The hogs that weigh 160 lbs. produce a side of cured bacon that will weigh approximately 45 lbs.; this will vary accordingly to conditions of slaughter, but is, speaking roughly, correct. One that weighs 200 lbs. will produce a side weighing 60 lbs. Between these limits is included the weights that sell on the English market as "sizeable bacon." If a side is below 45 lbs. it is known as light; above 60 it is known as heavy bacon. Sizeable bacon, as the name would indicate, is the bacon that is preferred, and it always brings the top price. Light or heavy bacon brings invariably from two to eight shillings less than the sizeable bacon per cwt. or 112 lbs. It will therefore be apparent to you that the bacon which will make the best return to the packer in Ontario is that which grades the largest proportion of sizeable—that is, weighs between 45 lbs. and 60 lbs. Going back a step further, that hog industry will bring the greatest returns to the farmers that produces the largest proportion of sizeable bacon.

The quantity of non-sizeable bacon varies with the month of the year. During the winter months when hogs are penned closely, getting little exercise; when weather conditions are bad for marketing them—and especially if the markets are low, there is a tendency on the part of the farmers to hold their hogs until they are overweight. Conversely, in the summer months, when feed begins to be scarce and prices are at the top, there is a tendency to market under weight hogs. The difference in the percentage of these undesirable weights is very marked. In January of this year, 1904, the percentage of overweight sides marked by the William Davies Company (which, perhaps, may be taken as the typical of conditions existing in Ontario because of the Company's central location), was about 28 per cent. of the total quantity. At the same time the percentage of light weight hogs, as you will

readily understand, fell to the lowest point, namely, 12 per cent., a total of 40 per cent. of unsizeable sides. In September on the other hand, the percentage of light sides, produced from hogs marketed before they had reached the necessary weight to produce sizeable bacon, rose as high as 26 per cent., and the proportion of heavy weight hogs producing heavy sides, fell as low as 18 per cent. The only time in the year when heavy sides market at approximately the same price as the sizeable sides is when they are in their lowest proportion that is in September, or the fall months of the year. The only time when light sides approximate to the price of sizeable sides is in January or the winter months when the proportion is at the lowest. At those seasons of the year when heavy or light bacon is in excess, we are obliged to sell our bacon on the English market at a great sacrifice in price, because we are compelling the market to take a product for which the demand is limited.

I have gone to some trouble to explain this because it leads up to a statement to what it means in hard cash wasted and lost to the farmers of Ontario through the careless marketing of hogs. The average amount of heavy bacon marketed by the William Davies Company in Toronto for 11 months of this year (1904) was 20 per cent. During the same 11 months, there was marketed, curiously enough 20 per cent. of light weight hogs. The heavy weight sides sold at from 2s. to 8s. less per cwt., or 1-2 to 1 1-2 cents per pound less than sizeable bacon. This on 20 per cent. of the bacon marketed represents a loss to the farmers of Ontario of not less than $130,000. The light weight bacon was sold at an average of 1s. 6d. per cwt. less than best sizeable a loss of about $95,000 per year.

Running along with this production of heavy and light bacon, we had a large percentage of fat bacon. This ran highest during the past year in March and April, being at that time fully 28 per cent. of the hogs marketed while it fell in October to ten per cent. This bacon sold at an average price of about 3s. 6d. per cwt. less than the best bacon. The average quantity was 16 per cent. of the whole, representing a loss to the farmers of Ontario, through their failure to produce hogs that will yield a lean bacon, of about $180,000 yearly. During the same period there were marketed 5 1-2 per cent. of bruised hogs, producing sides that were damaged and had to be sold at a reduction. There were marketed also 5 1-2 per cent. of soft sides—sides that were oily or pasty and would not grade as No. 1. On both these classes the average reduction of price was about 4-6 per cwt., and from both sources, soft and bruised, the loss is about $150,000 for the 12 months.

The net result of all these figures is this, that from our failure to properly fit hogs for the market without bruising them the farmers of Ontario lost during the past year $550,000, out of a total production, estimated after the bacon is cured, at thirteen and a half million of dollars. I think you will agree with me that this money was just as certainly lost to the farmers of Ontario as though it had gone up in smoke, because it does not cost a cent more except in brains to produce a pound of best bacon than of second rate bacon.

You may agree that this loss came out of the pockets of the packers—that they lost from the fact that they bought from you hogs which they believed would grade sizeable but which afterwards proved to be inferior. This is wholly incorrect. The packer considers average, not special conditions of price. He knows for instance that 60 per cent. of his bacon, taking the year through, will grade sizeable and that 40 per cent. will grade non-sizeable, and forming his estimate of what the market will be five or six weeks from now, when his bacon reaches the English market, he takes into account the

fact that important percentage of his bacon will not bring him the return of his best bacon, and fixes his price accordingly. The money comes out of the farmers not the packers. It is a loss to the agricultural resources of this country because he might just as well have produced $500,000 worth more with practically the same expenditure of time and feed.

Someone may object that the farmer is not to blame for this; that the packer is largely responsible because he does not buy his hogs on a rational basis; that he does not reward the farmer who produces a desirable type of hogs or give him an advantage above his neighbor who produces an inferior type. The answer to this from the packer's point of view is that you cannot hold on to both ends of the stick at once. Under the competitive conditions which have existed in Ontario for the last six or seven years, it has become necessary for the packers to buy hogs free on board at shipping points, without any close grading and without all the advantages of selection and what is included in selection. The packing houses of this Province have a combined capacity of 40,000 to 50,000 hogs per week. Against this we have a considerable number of hogs in Ontario not exceeding 25,000 to 30,000 weekly. It is therefore evident that there are not hogs enough to run all the packing houses at full capacity. As a result the different packers are anxious to get a fair share of hogs, and farmers naturally profit by the competitive conditions which arise. This leads doubtless to a great many anomalies in price, which the packer regrets as much as the man who is anxious to see only the best type of hog raised and marketed, but he is in a certain sense powerless to correct it. In considering the question it is well to remember that your finished product is the packer's raw material. The packer is simply the link in the chain between the producer and consumer. At best he can leave your product only as good as he receives it; he cannot improve upon it. Therefore if we are to meet conditions of competition on the English market, if, moreover, we are to get the best returns from this important bacon industry it is necessary that we breed, feed and market hogs that will meet the requirements of the English market as regards the production of sizeable bacon.

If the loss to the farmers for the reasons I have given is as stated, namely, $550,000 annually, surely this is the case where no one farmer can shield himself behind the sins of his neighbor. It is as easy to produce good bacon as poor bacon; it is as easy and a little easier to cure good bacon and a little easier to market it. It seems to me therefore that it rests with the farmer to increase the proportion of sizeable bacon beyond the sixty per cent. stage. The question which the farmer has to decide, and I believe he has decided it, is whether this bacon industry is one that commends itself to his support or not. If it does, then it should so commend itself twelve months out of every year. Just because in one particular year the price of coarse grain is above the price at which he believes he can produce bacon and market it profitably is no reason why he should make a wild stampede to get out of the market. As surely as he does, he will stampede just as wildly back again later on, only to have lost all the good trade of the intervening years. If the bacon industry commends itself to your judgment, it demands your continued support and it warrants your co-operation. We want the co-operation of the farmers, Institute speakers, breeders and of packers,—all who are connected with this great industry, we want this co-operation not only that we may obtain a better average price on the British market, but that, in addition, we may steadily make inroads on the production of bacon from other countries, so that Canada may take the premier place with her bacon as she has done with her cheese and promises to do with her butter.

I think I have pretty nearly covered this subject. I hope I have not given you the impression that we are not doing this bacon business well. I think the fact that sixty per cent. of our bacon grades sizeable is a fair record, but it is forty per cent. below being perfect. We shall only reach the top by keeping the top constantly in view. That forty per cent. must be persistently cut down and it rests with the farmers, the feeders, the breeders and the packers to co-operate to bring 100 per cent. of the product to grade as sizeable bacon.

Mr. GRISDALE: Has the percentage of soft sides increased or decreased, and if so how do you account for it?

Dr. SMALE: In 1896-97 the percentage of soft bacon marketed was about 15 per cent. Since that time the percentage has steadily decreased to 5 1-2 per cent. I account for this decline in no other way than by crediting it to the work done by the Agricultural College here, the Experimental Farm at Ottawa, the Farmers' Institute work, and this Live Stock Show.

T. H. MASON: We were very much disappointed last winter when hogs dropped 45c. per cwt., live weight, while about the same time there was an advance of half to a cent. per pound for the finished product on the domestic market, and the British market also advanced slightly. I understand that it takes six weeks to place the product on the British market, but at the same time this looked to us like a strange combination of circumstances.

Dr. SMALE: I have now no recollection of the particular circumstances referred to. The packers go largely upon the experience of previous years in fixing their prices. Such experience points to the probability of a decrease in prices when the bacon made in September reaches the market. Packers base their prices on their judgment of what the market will be in six weeks hence, and this judgment must necessarily be governed by the experience of previous years. They make mistakes either way. I will say frankly that the packers have been as much disappointed with the course of the market this year as you have been. In months when they expected the best returns, they experienced the heaviest losses. I believe the explanation for the continued low price is found in the increased exportation from Denmark During the present year they have not had more than three months of decent trade; in three months they broke about even, and in six months they sustained heavy losses.

Q. In what way do you find the sides bruised?

Dr. SMALE: The packers think that the farmers bruise most of the hogs; the farmers blame the drovers for the most of it and believe that the balance are bruised by the packers. The truth is that we are all to blame. The farmer who has improperly constructed racks on his wagon; the drover who either himself beats the hogs or allows his helpers to do it, all help to increase the number of bruised sides. At the packing house our help may be careless in unloading the hogs or in driving them to the slaughter house. We are all responsible, and while none can take the whole of the blame, the fact remains that, on account of this damage, there is a loss to the trade in the aggregate of $75,000 annually.

Q. The drop in prices in August has happened in more than one year?

Dr. SMALE: In the old days it was the practice to drop the price of hogs 50c or $1 per cwt. about the first of September. That was because year after year about the middle of October, on account of the increased quantity of hogs arriving from every source, there was an inevitable sharp drop in the bacon market. The same condition exists to-day only to a less extent. The crop of hogs is larger in the fall months than in any other season.

To obviate this, the best policy for the farmer to pursue would be to endeavor to market an average quantity of hogs every month.

Q. If we could give you a larger quantity of No. 1 hogs to-day what would you be prepared to pay for them?

Dr. SMALE: The difference between the price of sizeable and non-sizeable bacon will be at least 4s. per cwt. this week. This means a difference of from 1-2 to 3-4c per pound of bacon, which would mean in live weight about 3-8c. per pound.

Q. We produced some hogs recently that weighed 215 pounds when marketed; they were firm and in good shape; would these be considered first-class bacon hogs?

Dr. SMALE: They would produce a 63 lb. side, and although the English market is inclined to widen out a little in the matter of weights, still this was going a trifle over the weights that would be considered sizeable.

Q. The drovers were paying $4.65 at our station this week for all classes of hogs. The man who shipped No. 1 hogs, therefore, did not get value while the man who sent inferior hogs got more than they were worth. How are we to remedy this?

Dr. SMALE: I do not think there is any question as to the fairness of that criticism. Nevertheless it is true that the man who markets the best bacon does not do so at a loss. The fact that we are producing 60 per cent. of sizeable bacon means that a better price can be paid for hogs than if we produced say 20 per cent. sizeable. Therefore every farmer who produces sizeable bacon helps to raise the general average price. The man who produces a poorer quality all the time makes his money, or a part of it, at the expense of the man who produces the better quality. This $500,000 of loss comes out of the farmers, and it is on this account that I have brought the question before you in this shape,—that it may be plain to you that it is in the general interest of the farmers and packers alike that the average type of hog should be improved or rather that the average quality of hogs marketed should be brought as nearly as possible up to full standard of excellence as regards both weight and quality.

Q. Is the farmer producing the poorer quality likely to improve it so long as no discrimination is made against him?

Dr. SMALE: It is a fact that packers buy a large proportion of their hogs at a flat rate. If the percentage of fat or light hogs exceeds a certain modest quantity, the packer penalizes the drover for such. At certain seasons when heavy and fat hogs are in abundance it is common for the packing trade to take 25 to 50 per cwt. off such hogs to prevent so far as may be the marketing of these undesirable hogs. There is no question that the best possible remedy would be to grade hogs and pay for them strictly according to grade. That was done in the early days of the industry, but the competitive conditions which have since obtained have rendered that system impracticable, and some other way of overcoming the difficulty must be devised. It seems to me that for the present the remedy rests with the farmers interested, each farmer doing his best to persuade his neighbor to produce a good type of hog.

Q. It is the general belief that the greater part of the hogs purchased are bought on commission by men who are simply agents of the packers. If this is so, then, it seems to me, the packers have it in their power to grade.

Dr. SMALE: The larger portion of the hogs received by the Wm. Davies Company are bought f.o.b. on cars at shipping points from drovers, who accept the prices we quote. We pay no commission per hog, but we know that these men must live and that there must be some difference be-

tween the price they pay farmers and the price we pay them. A common difference is 10c. per cwt.

Q. How is it there is so much American ham and bacon on the Northwest market?

Dr. SMALE: The amount of American hams and bacon coming into Canada is not large, and it is marketed chiefly in the West and in the northern part of Quebec. The large proportion of it consists of short cut pork made from thick hogs, a class of hog which we do not want to see produced at all. Heretofore, Canadian packers have been giving a large share of their attention to the English market, and have not paid much attention to the Canadian West. This year they have given more attention to this trade, and I believe when the trade returns are published for this year they will show much less American bacon has been imported than ever before.

THE STOCKMAN'S INTEREST IN GOOD SEED.

By PROF. C. A. ZAVITZ, EXPERIMENTALIST, O.A.C., GUELPH.

There is a good deal of truth in the old saying that "good seed is at the foundation of good farming." A study of varieties during the last seventeen or eighteen years has thoroughly convinced me that if we are to obtain the best results on our farms we must secure the best varieties of farm crops for our own particular soils. Grain is still extensively grown in Ontario, but a large amount of it is now fed on the farms and a smaller proportion is exported, and therein lies the stockman's interest in good seed. There is no doubt whatever that the newer and better varieties of feeding grains, such as oats and barley, produce more stock food per acre than the old ones. This means cheaper stock food for the farmer who grows his own. Take for example the Siberian or the Banner oat. Either of these varieties yield 15 bushels per acre more than the old Tartarian. In barley, the Mandscheuri and the Oderbrucker varieties will yield very much more than the common six-rowed variety which we grew some years ago.

Not only must we get the best varieties, but we must pay particular attention to the quality of the seed. We have been endeavoring to ascertain whether, by selecting the large plump seed by means of the fanning mill, we could obtain superior results. We have compared large plump seed with small plump seed in oats, barley, and wheat. After making tests extending over five years, we found that the yield per acre was 20 per cent. larger from large plump seed than from small plump seed. Then we compared plump seed with shrunken seed, and found that there was a difference of about 19 per cent. in favor of plump seed. This shows the influence of seed selection upon the resulting crop.

Not only do we want the best varieties and the best selection of seed, but we must sow the seed at the right time if we are to get the best results. Seed must be sown as soon as the land is warm and dry enough to work to good advantage. As a result of six years' experiments with barley, we found that we secured 46 1-5 bushels per acre from the earliest date of sowing. Barley sown one week later yielded 45.9 bushels; two weeks later it yielded 39.8 bushels; three weeks later, 37.1 bushels; four weeks later 27.6 bushels; and that sown five weeks later yielded only 18.4 bushels per acre the total difference between the first and last seedings being the difference between 46 and 18 bushels per acre.

In oats, the following was the result: From the first date of sowing, 75.2 bushels; from the second, 76 bushels (this shows that there is a possibility of sowing oats a little too early); from the third, 64.2 bushels; from the fourth, 55.8 bushels; from the fifth, 45.2 bushels; and from the sixth, 37 bushels per acre.

Similar results were obtained with peas and spring wheat. For every single day's delay after the first few days had passed after the seed could have been sown there was a decrease of 56 pounds of oats per acre, 53 pounds of barley per acre, 29 pounds of spring wheat per acre, and 23 pounds of peas per acre.

Our experiments have further demonstrated that increased yields are to be obtained from certain mixtures. From all the mixtures used we got the greatest increased yield from oats and barley. Oats alone yielded 2,049 pounds per acre. Barley alone yielded 1,986 pounds per acre. From a mixture of one bushel of oats and one bushel of barley we got a yield of 2,270 pounds per acre. From the feeder's standpoint, therefore, we may mix these grains with very great advantage. We must have varieties that will ripen together, and the mixture that has given the best result is Mandscheuri barley and Daubeney oats. This oat has good length of straw, a thin hull, and it yields well.

Q. Have you tried spring wheat and oats?

Mr. Zavitz: Yes, but we had a larger yield from oats and barley.

Q. Would not the increased value in the wheat more than make up for the difference in yield?

Mr. Zavitz: I do not know that a pound of wheat would be worth much more than a pound of oats or barley for feeding purposes.

Q. Have you grown peas and oats for fodder?

Mr. Zavitz: Yes, for green fodder, and it gives a large yield, but the peas do not fill as well as if grown for grain. Oats, barley and peas together gave 2,100 lbs. per acre. It is a very good mixture and compares favorably with oats and barley.

Q. What percentage of oats and peas do you find best?

A. For green fodder, 2 bushels of oats to 1 bushel of peas.

Q. Is the Daubeney oat a good yielder?

A. One of the best of the early varieties.

Q. Is not the black oat a better yielder?

A. It depends on the variety. The highest yield in all our experiments was from a black variety, the Joanette. The next black oat stood about 17th on the list. Joanette is not suitable for the average Ontario soil as it is very short in the straw; it is, however, very thin in the hull. I would not sow as much Joanette with barley as I would of other varieties of oats as it stools out too much and is apt to lodge. On some rich soils this oat often gives excellent satisfaction.

G. H. Clark, Seed Division, Ottawa: The matter of seed selection is of the greatest possible importance to the farmer. There is sometimes as much difference between two strains of seed of the same variety as there is between two distinct varieties. The Seed Growers' Association has been organized in this country with the object of inducing farmers to make a specialty of growing various kinds of seed grains. Regulations are provided for the better carrying out of the objects, so as to get only the best seeds for sale. This means that stock men will be able to secure a greater yield of stock food on their farms and at a reduced cost of production. Stockmen will soon be able to get their seed grains through the Canadian Seed Growers' Association.

REPORTS ON EXHIBITS AT THE WINTER FAIR, GUELPH.

CATTLE.

By A. W. Smith, Maple Lodge.

Perhaps the most prominent feature of the exhibit in the cattle classes at the Winter Fair was the evening-up in quality, as compared with most of the exhibitions of a similar kind held previously. This was not because the exhibit was generally better, but rather that there were less of the kind we might call inferior, and not so many extra good ones. With only a few exceptions none were prominently good. Among the exceptions were the two beautiful young heifers shown by Messrs. R. & J. Watt. Objection was taken to these heifers being shown because they were not intended for slaughter. But surely as an object lesson at an educational exhibition it would be very difficult to find a better example of early maturity. It would certainly be more desirable to exclude those old cows, so many of which are rough and patchy, and often brought because of the opportunity of selling at the Winter Fair, and not because of any hope of winning in good company.

The single entry in the two-year old class for Shorthorn Steer was not a good type for the feeder, although carrying a fairly good top. The yearling steers in the Shorthorn class should be the best, but nearly every entry was thin in flesh, only one entry showing the thickness we expect in a well-bred steer of that age, if properly fed. W. R. Elliott's entry showed good form, thick flesh and easy feeding qualities. The steer calves in this class were better, both in flesh and finish. D. Talbot & Son won first with a very nice thick calf, and A. Young was very little behind and won second and third prizes. Only one good cow, that shown by Mr. Wm. Fleming, London, was in the ring. Messrs. Watts' cow was so far overdone and overloaded with fat that she was almost as far from correct type as some of those not ripe. Watts' showed a beautiful heifer in the under two-year old class, ripe, firm and finished. Their heifer calf was a marvel of early maturity and was awarded first very properly.

The Herefords and Aberdeen-Angus which showed together, as well as the Galloways and Devons were very poorly fitted. It certainly is surprising that the breeders of these cattle (of so good beef type when properly selected and prepared) should be so indifferent of the exhibition made at this great show. When one comes from the International at Chicago, after looking at the splendid exhibit made there of those breeds, and compare them with those seen at the Guelph Winter Fair, the comparison is not favorable to the Canadian breeders. Not so with the Shorthorns or Shorthorn Grades. Here he sees the same animals in several cases that stood at the head of the list in Chicago, and in some cases compelled to take a lower place.

The Grand Champion of the Cattle classes was won by a Grade. This very often occurs both in this and other important exhibitions; a splendid tribute to the use of pure-bred sires, and yet over fifty per cent. of the bulls used in Ontario, are not only not pure-bred but positive scrubs.

The whole class for Grades and Crosses was good, and, as usual, the strongest in the show. Mr. Jas. Leask's two-year old was an exceptionally good one, and had he been a little firmer in his flesh would have been a very strong claimant for the Championship which went to "Freddie B" in the yearling sections, bred by Mr. D. A. Graham, Ivan, Ont. from a pure bred Shorthorn bull and Grade Shorthorn cow and fitted and shown by Messrs. Brown & Sons of Galt. This was an excellent example of a well-bred, well-fed young steer. He was smooth, and the flesh, of first quality, was evenly laid all over and well developed in the best cuts. The yearling and two-year-old classes were both strong. W. Hamilton's two-year-old "Missy" made a strong show, as did J. Dickson's entry in the yearling class. The section for steers under one year was most interesting to the student. The entries were good and the judges placed the first award correctly on J. Elliott's calf. He had good quality and was very well filled. The second and third awards were not so clear, both were good calves. Leask's was not so ripe but his quality, fleshing and attractiveness from a feeders point of view would make him a very probable winner as a yearling. The Grade cows and heifers were generally good. Brown & Sons and J. Elliott won first and second on two good smooth cows; while in the two-year olds Wilson & Son had hard work with an exceptionally good heifer to keep ahead of McDougall's handsome "Blue Roan." Leask had one of the best things in the section for heifers under two years and was easily first. R. W. McKinnon came second with an Aberdeen-Angus Grade.

The Export Steer class was this year much nearer to what it should be than it ever has been at Guelph. We have had them overdone, or what is often called "Christmas Beef" and we have had unfinished steers just good to go into the stable to feed. But this year something of the kind that brings the best prices and profit were shown and no division of the show was more attractive and instructive. Mr. Leask's steers had several advantages over the others to give them the lead for first place. They were younger and they were ripe, and what is one of the most profitable conditions to have in a bunch of steers for export, or any other market almost, they were uniform. Uniformity will make good many defects which would be much more noticed in an uneven lot. The third prize group had two extra steers but were handicapped by an inferior third.

SHEEP.

Cotswolds: By T. Hardy Shore, Glanworth.

Ewe Lambs. A wonderfully good show. I never saw a better one of American bred ewes. The first prize was awarded to a very large ewe with a dense coat of wool, well covered head and legs, a strong back and loins well covered with the best quality of meat. The second prize animal was a mate to the first, but not quite as well finished, still it was a good one. The third prize went to a smaller ewe which would have been a good one in almost any company, being well wooled and a good carcass of mutton.

Pen of three Ewe Lambs. This competition brought out a lot of good ones. The first and second in single class came out in the first-prize pen with another good one making a very strong pen. The second lot had the third prize ewe in it with two others nearly as good. For third place there was a very good pen, but the ewes were not as large nor as well finished as the first and second pens.

Yearling Wethers. The first prize one was a very good sheep with a first-class carcass of firm mutton. The second was another good one, but was not as well covered along the back, loins, or saddle. The third prize wether was not as large or quite as ripe, but would make a very useful carcass.

Wether Lambs. A very good show. The first was good, I might say first-class. The carcass was even all round with good leg of mutton, loin and saddle. The next wether was not quite as good in leg of mutton or loin. The third prize went to a wether with a very useful carcass, which, however, did not equal those in first and second places.

LINCOLNS: BY T. HARDY SHORE, GLANWORTH.

Yearling Wethers. The first, an all round good one. The second, very much like first, but a little bare on top. The third another good one, but a little deficient in leg and on back.

Wether Lambs. The first, a real good sheep with a well-covered back of good mutton quality. The second, another good one, but not quite as well covered on back. The third, a good carcass, but not quite as well finished as first and second.

Ewe Lambs. First a great straight typical Lincoln, evenly fleeced, Well covered back and loin, would make a good carcass. Second a good one, not showing so much breed quality as first. Third, a very good lamb, but not so good on saddle as first and second.

LEICESTERS: BY T. HARDY SHORE, GLANWORTH.

Yearling Wethers. First, a good sheep, well and evenly covered, with good quality of meat, even all over and very firm. Second, a trifle larger sheep but not quite so firm or so evenly covered.

Wether Lambs. The first, a wonderfully good lamb, very firm and well covered on back, loin, and leg. Second, another good one, but not quite as mellow to the touch as the first. Third, did not carry out quite so well on hips as first and second.

Ewe Lambs. The first and second prize lambs were so much alike that it was hard to decide, but the first place was given to the one showing the better constitution.

SHROPSHIRES: BY J. C. DUNCAN, LEWISTON, N. Y.

Ewe under 1 year: 1st prize animal had more scale with better fleece and skin. The second prize animal was a very good one; the main fault being a weakness behind the shoulder. The third prize animal was fully as good a type as any in the ring but was not forward enough in flesh and it also had some bad spots on the skin.

Wether 1 year and under 2: The first prize animal was an ideal type of the breed. It was an extremely hard, evenly covered sheep which showed no waste on any part of the body. The second prize animal lacked the flesh on the loin showing a bareness at that point. The third prize animal was an extremely thick-fleshed sheep but handled too soft to kill well.

Wether under 1 year: The first prize animal was an ideal lamb, straight and firm with an evenness hard to surpass. The second prize animal lacked the firmness and thickness of flesh of the first one. The third prize animal was somewhat inferior in the leg of mutton and not forward enough in flesh.

Three wethers under 1 year: The first prize pen had more scale and were on an average much more evenly fleshed. The second prize pen consisted of one extra good one and two inferior ones. The third prize animals were even but too light in legs of mutton to make ideal butchers' lambs from consumer's point of view.

Three Ewes under 1 year: The first prize pen were even and typical making a more ideal pen, all of one type and size, with a good average of quality. The second prize animals were not as good an average, being only in field condition. The third prize animals were very even bodied animals; also well fleshed but were too high up to represent an ideal type of the breeding animals.

SOUTHDOWNS: BY J. C. DUNCAN, LEWISTON, N. Y.

Ewe under 1 year: The first prize animal was a lamb of great scale, showing a remarkable constitution with a beautiful skin and fleece. The second prize animal did not show so much scale but was a good type of the breed. The third prize lamb was a good type but not quite as straight on the legs as the first and second prize animals.

Wether 1 year and under 2 years: First and second prizes went to animals that were of the ideal type of the breed and were fitted to perfection so it mattered little which of the two went at the head. Firmness of flesh gave the winner his place. The third prize went to a very good sheep for the consumer, but it was too high up on its legs to represent an ideal Southdown.

Wether under 1 year: The first prize animal was an outstanding winner, true type, good all over. The second prize animal was also an excellent one but lacked the weight of the one placed first. The third prize animal a lamb of good quality but it lacked the condition of the other two.

Three wethers under 1 year: The first prize pen had best backs and were firmer in flesh than the second prize pen. The third prize pen were excellent specimens but not fed long enough.

Three ewes under 1 year: The first prize animals were a very even lot of lambs with strong constitutions, heavy fleeces and fine skins. The second prize pen consisted of good animals but not as strong in constitution or quite as good in fleece. The third prize pen were not quite as good on their legs.

DORSET HORNS: BY J. C. DUNCAN, LEWISTON, N. Y.

Ewe under 1 year: The first and second prize animals were both good specimens and there was very little difference between them. The third prize animal was much older but not in condition to show by the side of the other two.

Wether 1 year and under 2 years: The first prize animal was an excellent specimen of the breed and the best Dorset wether the writer has seen in any Fat Stock Show exhibit. The second prize was also a good one but not as good on crops as the first prize one nor quite as firm. The third prize animal made a good carcass but a very bad type of the breed.

Wether under 1 year: The first prize lamb was a fairly good type and in good flesh.

OXFORD DOWNS AND HAMPSHIRES: BY JAS. TOLTON, WALKERTON.

Although there were animals on exhibition that were up to date and correctly represented the type and character of the Oxford Down and Hamp-

shire breeds the exhibit was numerically small. Through the failure of the exhibitor of Suffolks to have his sheep in the building at the time they were judged there were none of this breed in the judging ring.

Oxford Downs:

Ewe under 1 year: These were all of good type and character; good all round specimens of the breed.

Wethers under 1 year: Six were shown. They were all fairly good but nothing outstanding, and could only be classed as good butcher lambs.

Hampshires and Suffolks:

Ewe under 1 year: Three were shown. All were good above the average in type and character. The first and third prizes were of the same type and character. The second prize was a somewhat different type to the other two being a little more rangy, perhaps a little too high from the ground and a little too much length in the neck but with good back and loin.

Wether 1 year old and under 2: Three were shown. The first was an outstanding winner, good size, good type, well developed all round, evenly fleshed and good in all the most valuable cuts. The other two were just medium sized and could only be classed as good mutton sheep.

Wethers under 1 year: Those shown were just fairly good. The first and second prizes were much the same and could only be classed as fairly good animals.

SWINE.

TAMWORTHS: BY W. JONES, MT. ELGIN.

Barrow, over 6 months and under 9: Only three entries forward. 1st went to a long smooth barrow with an excellent top, but a little lacking in underline. 2nd went to a barrow of more scale than the 1st prize barrow, but was lacking on his top and side lines. 3rd was a very nice barrow, but considerably undersized for his class.

Barrow under 6 months: 1st went to a very smooth even pig throughout, of good Tamworth type. The 2nd and 3rd went to two very good barrows that in type were quite the equal to the 1st prize barrow but scarcely as even and well finished. The 4th went to a good barrow but not quite as true on side lines as those placed higher in awards. The 5th went to a barrow much smaller than those before mentioned and scarcely as good throughout.

Sow, over 9 and under 15 months: 1st prize went to a capital sow of excellent type and conformation; only 10 months old but one of the hard things to beat in any class. The 2nd and 3rd went to a pair of capital sows larger and older than the 1st prize sow and although good, yet they were not so perfect on side and upper lines as the 1st prize sow. The 4th went to a very good sow, but lacked in finish in comparison to those placed higher in the awards.

Sow, 6 months and under 9: The 1st prize went to a sow much the same type as the prize sow over 9 months, and fast approaching the same degree of perfection. The 2nd and 3rd were a pair of good sows, a little larger than the 1st prize sow but lacking in quality. The 4th went to a sow not so good in any respects as those placed higher in the awards.

Sow under 6 months: The 1st and second prizes were placed on a pair of sows much alike, and well brought out, possessing size and quality. The 3rd went to a very good sow of less scale and finish than the preceding entries.

YORKSHIRES: BY WM. JONES.

The exhibit of Yorkshires at the Winter Fair was on the whole very good. Few inferior animals came forward and there were fewer exceptionally good ones, the greater part of the entries being of good average quality.

Barrow over 6 months and under 9 months: The 1st prize in this section was placed on a barrow of good conformation throughout standing on good legs and feet. The second prize was placed on a capital smooth pig of great length and in some respects quite superior to the first prize pig but lacked in age and size for his class which kept him back to second place. The third prize went to a capital good pig lacking a little in length and a trifle plain in head and neck and a little undersized in comparison with the winners that preceded him. The fourth prize was awarded to a pig with far less quality than those placed higher in the awards. The fifth went to a pig lacking character and undersized for his class.

Barrow under 6 months: The first prize pig had an easy victory being a capital, good Yorkshire of up-to-date type and nicely finished. The second prize went to a nice pig with less length and scarcely as much character as the first prize winner. The third prize was placed on a pig of less quality than either of the preceding ones while the 4th and 5th were given to very good individuals but not strong enough in any respect to secure better places in the awards.

Sows over 9 and under 15: The first prize was placed on an excellent sow possessing size and quality combined and one that would be hard to beat in any company. The second prize went to a good strong useful sow, but lacked the finish and size of the first prize sow. The third prize went to a very lengthy smooth sow but one very bad on legs and feet which kept her out of second place. The fourth was placed on a very large sow, plain in head and shoulders and not so good on back as it should be.

Sows over 6 months and under 9: The first prize went to a strong smooth sow, nicely finished throughout, of good length of body and on capital feet and legs. The second prize went to a very good sow of nice quality throughout but scarcely as strong on feet and legs, and a little less length of body than the first prize sow. The third prize went to a very good sow also, but scarcely as nice in finish as those placed higher in the awards. The fourth went to a strong smooth sow of good length and mounted on good feet and legs but a trifle plain in head and shoulders. The fifth went to a sow of greater weight and size than the others placed in the awards but lacked finish. There were still some good things left in this class outside the awards.

Sows under 6 months: The pigs in this section were too large for their class and presented an appearance of age not consistent to the section they were showing in and the awards went to the younger and more lusty appearing individuals. The first, second and third prizes were placed on three very nice smooth sows of good Yorkshire character throughout. The third prize sow carried a little less length than the other two. The fourth prize went to a very nice sow but one with a little less length than those placed higher in the awards. The fifth went to a good useful sow showing less character than the preceding awards.

Three pigs the offspring of one sow: The first prize went to a group composed of the first prize sow in section 3, the first prize barrow in section

1 and the third prize sow in section 3. The second prize went to three good pigs under 6 months.

Sweepstake for Yorkshire barrow any age went to the barrow that secured first in the section for barrow over 6 months and under 9.

Berkshires: By R. H. Harding, Thorndale.

While the Berkshire exhibit at the Guelph Winter Fair was no larger than usual and no better quality taken altogether, yet the exhibit could not be pronounced anything but a really good one. There were a few on exhibition that had the appearance of being outclassed, however they may have belonged to very large growthy families and may have grown very fast. I think it wise to give the benefit of my doubts to younger ones even if the large good ones are shut out of the winnings by so doing. There were several on exhibition worthy of special mention, among them a sow shown under 15 months. This was a splendid sow of great length and scale, a better one seldom entering the show ring. She had some worthy competitors equal in quality but lacking scale. Another outstanding winner was a sow under nine months. She also had good length combined with quality, and will no doubt be heard from again. Another one worthy of special mention was a barrow under nine months, winner of the Prince of Wales prize as well as first in group of three. This barrow was up to the top notch in fit and finish, such as is seldom equalled. There were several other good ones in this exhibit.

POULTRY.

By Thos. H. Smelt, Woodstock.

The Winter Fair has added one more success to its list of grand exhibits and this year the classes judged by me were a decided improvement in point of quality.

Leghorns were exceptionally large classes and competition very keen in all sections. First Single Comb White cock is a grand one, good color and nice style, good head and in fine trim. Second close up, fine color, lacks in body shape to first. Third a good one, not so stylish, lacks a little in head points. First hen a gem, pure in color, very stylish, a little pale in leg color. Second hen only lacks a little in comb to first; third also a good one. Cockerels were the grandest lot I ever judged; many not in the winnings that any breeder would be proud of. First cockerel is a gem, pure in color, very stylish, grand comb and lobes; second also a grand one, but hardly as stylish; third close up. First pullet perhaps the gem of the class, and the winner of most of the specials. She is the most typical Leghorn in the lot, white to the skin, beautiful in style and grand comb and lobes: in fact I have never seen a better head. Second is also a beauty and only lacks in head points. Third is a real nice one, not so good in style but good enough to win in almost any show; a lot of other good ones left out. The Rose Comb White Leghorns were an improvement. The winners in all sections were first class. This variety needs a little more careful breeding to head points to make them one of the most beautiful of the Leghorn classes. The same might be said of the rose comb brown Leghorns. The exhibit this year was extra good; a decided improvement has been made in color, especially in the male birds, but the majority lack in head points. Single comb brown Leghorns were by far the best lot ever shown at the Ontario. There was a deci-

ded improvement in color and also in type. First cock is good size, fine in shape, of good color and grand head; wins easy; other winners in class are also first class but not so typical as first. First hen nice style, grand back color, good even wings and shows little shafting; second not so good in wing color, but a grand one; third good head and even color, not quite so good in back. First cockerel is a gem and hard to beat; he is almost perfect in color, neck and saddle beautifully striped and of the same shade of color, good head and nice style; second a good color, fine style, fine comb and lobes, well striped neck and saddle; third a grand one, lacks a little in head. First pullet is almost without a fault, fine in shape and of that soft even color all over which is so much desired in brown females; others in class were also first class.

Black Spanish were an improvement in style and shape, most of them a little coarse in face, but taken as a class were very good.

Andalusians were extra fine; winners in all sections were of extra fine color, and very typical. As a class I consider them an improvement over former years.

Red Caps a rather small class; first cock and first hen very good both in shape and color.

Sultans as usual were first-class. The winners would be hard to beat anywhere.

Silkies were also of extra quality; winners showing a decided improvement in texture of plumage.

Hamburgs as usual were all that could be desired. Spangles in both golden and silver were first class and little choice for honors. Pencilled, golden and silver, were also A1, and show very careful breeding to color and markings. Black Hamburgs were never shown in better quality than here. The winning cock and hen, also the first cockerel and first pullet are especially fine; grand style and color, grand combs and lobes, and good enough to win in any company. Other specimens in this class exceptionally fine.

By Sharp Butterfield, Windsor.

I think this is my 32nd time judging at our Ontario show, and how it has grown, both in quality and quantity. In the earlier days there were no Wyandottes or Orpingtons, no white or buff Rocks. Barred Rocks then constituted all there was of the Rock family, and at this day those kinds I have enumerated make fully one-quarter of the show. And when we look back for 32 years, what great progress in perfecting the various exhibition birds. It is almost past any man's comprehension. The greatest difficulty that now exists in our Ontario show is that there are not enough first prizes to place on first and high-class birds. In some of the classes I judged I could easily have placed two or three first prizes to advantage on birds well deserving of first place.

Buff Cochins—We will start with the Buff Cochins. 1st cock, a grand colored bird, large and showy, grand furnished legs and feet, and still he was not faultless. One bad fault almost the worst fault, he could not pose as our ideal Cochin; 2nd, tail not so good in buff color as we would wish, but still his outer color was marvellous, and length of feather so desirable on a Cochin was very good; 2nd, cock a better ideal in Cochin shape, but lacks size and brightness of color, but even with those faults was a pretty good Cochin. Just about the same description as 2nd would suit 3rd. Hens: 1st in grand show shape and very fine in color, a better poser than 1st cock. To those who do not properly understand what the term posing means in a

Cochin, I will try briefly to explain. An ideal Cochin's head should never be higher than the tail; and to have that a Cochin should be very short in neck, so that when the bird is standing in his natural position he should look like a great big globe with no portion of the bird marring that globular shape. 2nd, easily the best in shape, but her coarse comb, and though rich in color the unevenness caused her to get 2nd place, though her fluff and hocks were immense in what constitutes a high-class Cochin. 3rd, a good hen, but plainer in make up than 1st and 2nd. Cockerel: 1st, a really grand colored bird and quite a nice poser; 2nd, will some day be the better of the two, wants more age; 3rd, may make a grand bird, but too immature for the company he was in. Pullets: 1st, an easy winner, a good all round pullet; 2nd, another very good pullet, but lacks evenness of color; 3rd, quite a good Cochin, but wants more time for her development. Balance of the class very good if the winners were away. Partridges Cochins: 1st cock just about the best model of a Cochin in the show, but he, like 1st buff cock, carries his head too high, a fault we often see in human nature; 2nd, cock too much Brahma shape in several sections; 3rd, the same. Hens: 1st, grand in color, not so long in body and fluff feathers as 2nd hen, but pencilled on fluff just as good as on her wing, while 2nd hen was very deficient in fluff pencilling; 3rd, getting away from Cochin characteristics; 1st cockerel a really grand colored cockerel, especially well striped in neck, hackle and saddle, but too long in legs, but may make a very good cock bird. Balance of cockerels not much to build castles upon. Pullets only fair, not a good one among them.

Buff Leghorns—1st cock an easy winner, good Leghorn shape, large and grandly colored; 2nd, a very good color, poorer in ear lobe than we want to see, still a long way off in size and length of leg compared with 1st cock; 3rd in bad shape, canker in comb, made me put him back, but there is a place which, if I had put him second there would have been no room for complaint; for though he was a little higher in color, he was uniform and probably as a sire would be liable to produce as many or more high-class birds than the two I placed ahead of him. 1st hen just an easy walkover, and if I was told she was the mother of the 3rd cock I could be made to believe it very easily; 2nd and 3rd good hens, and would look fine if 1st hen had not been there. 1st cockerel one of the best up-to-date productions, and would suggest that be his name; a good all round bird; about all one would wish in him is that his ear lobes were a little whiter; 2nd and 3rd both good cockerels, but it is hardly possible they will develop length and richness of feather that 1st cockerel possesses. Pullets, not a poor one in the class, but not one so perfect as first prize hen. Buff Leghorns were not a heavy class, but were good, what there were of them. It looked to me as if Mr. Cornwall had got them all frightened, and still his name did not appear in the list of exhibitors. May be he did so well at the World's Fair and sold all his outfit there to our dear American cousins.

Games.—1st, black red cock, a different type to balance of class, shorter and harder in feather, with neck hackle the best of lemon and saddle hackle to match, then cut away in throat and also at junction of neck, much more so than any other bird in the class. Then his body seemed to have been made with a gouge, the cutaway in every section made him look as if the artist who made him took off all suberabundance not required in a high-class exhibition bird; he looked to me like 1st cockerel last year; I think him a very good bird; 2nd, nice carriage, too soft, broad and long in feather; 3rd, a rather nice colored bird, but same faults as second. Hens: 1st, an easier winner than 1st cock. I think she is the shortest in feather and the hardest in feather I ever saw, either in England or America; her long thin neck and

her shortness of hackle feather just made her about the most desirable of breeders. Then the angle of her body was just about the same as some of our great game artists have given us on paper. Now, one more grand thing about 1st hen was her color, even, and not the sign of a shaft in wing or back, a thing so much desired in a high-class exhibition female. 2nd hen larger in size, and there is something about her rather catching, though she is badly shafted, and while she stands at a grand angle, her tail is carried too low. I think it will probaly not be out of place to just give what I observed at one of our Western shows. I had judged the large games at this show, and there were some good enough for me to get 94 1-2 and I think a female went 95. Another judge scored the Bantams and he managed to get one 98 points, a black red cockerel. After we had done scoring that day, a gentleman, an artist I knew, said, "Have you found anything good in males?" I said, "Yes, very fair." He said, "I have made an offer to paint the highest scoring male in Game or Game Bants as a special prize, and I am told there is a black red Game Bantam scored 98 points. Ninety-eight points out of a possible 100: Why, no painter ever lived who could paint a painting so perfect as that bird must be. Come with me and look at the bird." I went with him and after he looked at the bird a short time, he saw the man's advertising card nailed over the coop. "Why," he said, "this 98-point bird does not resemble that cut at all. From the way he carried his body he looks more like a duck. I am not going to paint that bird, for if I do those who see my painting will say I am no artist. I will take this cut that is used for advertising and never make a drawing of the 98-point bird at all." Well, now, if exhibitors will just consider as much how to breed those angles we see in the best of cuts, they won't require any judge to tell them their birds carry their bodies like a duck. 3rd hen, did not carry herself erect enough to show what good qualities were in her. A great fault in a great many, I may say, almost the majority of games, is the way they carry themselves, and I see of no better way to make it intelligent to breeders who were at our Ontario, than to have stepped over into the Bantam alley and looked at the 1st duckwing cock, the 1st and 2nd black red cocks, and it would be easy to see ideals of high-class style that did not prevail much in the large Game classes, and we are not living simply on imaginary ideals. The realization was in Bantam alley, and I have no doubt when I have done there will be lots left for thought and work to accomplish in large Games that has been accomplished in Game Bantams. Cockerels: 1st, I may say the same of him as I did in cocks, a different type altogether, not in grand show condition, but so far ahead in the ideals we see in print that to a close student or close observer he could carry some of that bird's good points in memory for years to come. Made with a gouge; you could not make a bird shaped like him with a broad axe or a jack plane, and I hope we will all live to see the 1st prize cockerel as a cock. I am sure my words will come true. The trip to a Game breeder will be well worth all the time and costs included. Now, the next bird to him I could not place because of his immaturity and condition, and I have no doubt anyone who was competing against the cockerel unplaced would pay more for him than any cockerel in class, not excepting the first. 2nd is looser and softer in feather, carried his tail and body well, but one of his great faults was neck too short, and he carried too much neck hackle; 3rd, a very similar bird to 2nd, only did not carry himself quite so erect in body. Now for the balance of black red Game cockerels. Nearly everyone of them with grand lemon hackles and saddles, but just as loose and soft in feather as if the hard short feather was not necessary in exhibition Games. Pullets: 1st, and 2nd very good

grand in color and free from shafting; 3rd, not so good in carriage, but good in color and free from shafting. The balance of pullets really good, nearly every one; if it had not been for the miserable shafting I think it was the worst shafting I ever saw at the Ontario show. I am omitting one pullet along with third pullet; she was very nice on the small side, but free from shafting; brown red cocks just fair to middling, a great falling off from what we saw two or three years ago. Hens, winners grand, good exhibition females. Cockerels: 1st, best developed in the class, but a long way behind what we generally meet at the Ontario. In this class I noticed several, if they had not been stunted and sick would have been grand birds, for their color was of the promising lemon, and breast color and lacing showed what it would have been but for sickness. Pullets: 1st, 2nd and 3rd all high class, and fit to show in the best of company and at any show this side of the great big pond.

Duckwings—Not a really good cock in the class. I think it was the third bird I liked best but he was a poor silver and a worse golden, though it was large class of cocks, not one real good among them. Hen: better; 1st and 2nd quite good hens; 3rd another very good hen. Chicks fair to middling. It is now two or three years ago since we saw a really good golden duckwing cock or cockerel at our Ontario. Pyles: 1st cock a little too much color, but some very good things about him; 2nd a very clean bird in his color but too long in back and body which detracts a great deal from his make-up. 3rd, another very good bird. Hens: 1st, sadly too much red in wing, and if she was as good a color as second; would say take her all round, the best pyle hen seen in Canada. I call her a grand model of a Game hen; 2nd, a good color, but like second cock, shoulders not prominent enough for the length of her body; 3rd, another very good bird. Cockerels: 1st, and 2nd, easy winners, and look to them to be two grand cocks for next year; 3rd, not matured enough to form a correct opinion. 1st pullet a grand pullet; about the only place you would want her better is a little more color in breast. 2nd, another very promising pullet, and looks like making a good hen; 3rd, a very creditable pullet. In any other variety of Games, Sumatras took the lead, though I noticed a very good Malay cock, but age is telling against him.

Indian Games—1st cock quite a grand shaped bird on fairly short legs, the width of shoulders just about as long as his body. One bird I liked better, but he was quite under the weather, very short in leg, with a grander pair of shoulders than even the first bird, and take him all around, if in good condition he might have been placed first; 2nd, longer in leg than 1st, and not so wide in shoulders, and longer in body, and did not stand elevated enough on the front; 3rd, a grand plumage bird, but fails in legs and shape of body. Hens: 1st, a gem in shape and color, short on legs, and neat all round, and if she was about two pounds bigger she would take a mighty good hen to beat her: 2nd, another good colored hen, but though larger, not so shapely; 3rd, another good hen, hardly as clear and bright in ground color as 1st and 2nd, or she might have changed places with 2nd, and if she had had the bright color of 1st hen it would not have been out of place to have put her first. Cockerels: 1st, quite a stylish shaped cockerel, a little longer in leg than he should be, but a good all round bird: 2nd, younger and hardly developed enough to win 1st, may beat first cockerel with a little more development; 3rd, another grand stylish fellow: these three cockerels are really good specimens. Pullets: The best colored lot of pullets I ever met at the Ontario, and prizes had to be placed very much on shape. Most of these grand colored pullets lacked the shape of 1st prize

hen; 1st prize hen great in shoulders and short in body, on short legs, and tail being so closely folded makes her nearly an ideal. In conclusion the Indian Games made a grand large exhibit. At very few shows do we see as many or as many good specimens. I noticed the 1st cockerel at the World's Fair, a Canadian bird shown by Mr. LaRose, a grand shapely bird. I think it is the bird I placed 1st at Sherbrooke this fall, and had he been at the Ontario he would have been quite an object lesson to our Indian Game breeders.

Game Bantams—1st black red cock a little higher color in neck hackle and saddle than is asked by the Standard. Outside of this he carried himself in such a manner that any Game Bantam artist can get a model worthy of his best work. The nearest approaching the ideal cuts of any bird we have seen for a long time, and if his hackle and saddle had been a more distinct lemon, in England would sell among the Game Bantam breeders for probably $250, or perhaps more; 2nd cock a little better in hackle and saddle, grand in length of leg and neck and shoulders, and wing carriage about perfect, but he did not carry himself in ideal shape like the 1st, or should probably have beaten the 1st, two very high-class specimens; 3rd cock another grand Game Bantam, a real good one, but hackle and saddle too red in color, a grand bird all over but for hackle and saddle color. Hens: 1st, a really grand small hen, very compactly built, well cut away behind, and carries herself fine; 2nd, another grand hen; but not so tight and close in feather; 3rd, another grand hen, and if the other two winners had been away, 1st prize would have been placed on a hen worthy to win 1st at an Ontario. Cockerels: 1st, a grand bird in every section but one, and that was his saddle feathers. Though grand in color, their being so very short showed the shaft prominently and lacked the finish of a good saddle hackle. It will certainly make a grand cock bird, for saddle feathers in next moult will be more developed in color; 2nd, a well behaved bird and very catchy, a little long in back and body, but in grand show condition, at his best as a cockerel; 3rd, another grand bird, faulty in the shortness of saddle color though it is a grand lemon color, but showing too much difference between color of shaft and color of feather. I noticed two more in this class with the above fault, but if the birds live to see Guelph, our Ontario show, I think we shall have the pleasure of seeing not one or two but a class of the best, and most of them ever shown in Canada, or I may say on this side of the Atlantic. Pullets: 1st, an easy win among a lot of very high class pullets; her shape and color made her nearly the highest ideal; 2nd, another good one, not quite so nicely cut away; 3rd, another one running close up, and as I said 1st an easy win, 2nd and 3rd may easily change places on being slightly out of condition. I have seen the black red Game Bantam class larger at our Ontario and I think the exhibitors will agree with me that there were never as many high-class specimens in that class before. Duckwings: 1st cock the easiest win in the Bantams, and if his color was as good as his shape, carriage and style, would say that it would take a Rosa Bonheur to make as good a picture as the bird we saw at the Ontario; and I would like our young artist, Mr. Schilling, to see this bird when the bird is feeling all right, and I think impressions would be made on him that he would never forget when making drawings of a Game or Game Bantam male; 2nd, we would consider a good bird and very worthy of a first prize at any show; 3rd, a fair good bird, colors not so distinct as they should be. 1st hen an easy winner for color, just about perfect for a golden duckwing female, a nice small good hen; 2nd, another very good hen, not so good in color or so tight and hard in feather; 3rd, follows very close up to 2nd hen. Cockerels: 1st, a grand

style of Game Bantam, but very indistinct in color; 2nd, rather a nice bird, but wants age to develop; 3rd, too immature. Pullets: 1st, if she was a little shorter in back and body, would consider a really good one; 2nd, a nice pullet, but too soft and broad in feather; 3rd, a fair pullet. Brown reds: 1st cock quite a stylish bird, but colors are a long way from ideal, still an easy first; 2nd, a very good colored bird, but lacks style and make up; 3rd, rather an old-fashioned type. Hens: 1st quite a good one, both in color and general make-up; 2nd and 3rd good hens. Cockerels too immature to say much about their good qualities, I mean the promising ones. Pullets more developed, and one or two promising to make very good specimens. Pyles rather disappointing, too many middling good ones. 1st cock a very good small bird, looks like first cockerel last year; 2nd, rather a nice cock, but bulky in body, rather a good bird, take him all round; 3rd, large in body and did not carry himself erect enough. 1st hen, nice small body and well cut away behind; 2nd fuller in body, but did not carry herself to advantage; 3rd, another fairly good hen. Cockerels: 1st, though under the weather some, a real grand shouldered bird, small in size, with grand wing butts, fine in neck, and especially fine in head; 2nd about his greatest fault was softness of feather; nicely cut away with a nicely carried tail, but lacked the holding himself together like 1st duckwing cock; 3rd larger in body than 2nd, carried a nice tail at a desirable angle, and grandly finished on saddle, but carried his body too horizontally, not perpendicular enough; the same fault in most of the birds not placed. Pullets: 1st, easily the best female in the pyle classes. She had been made by a gouge, for in several sections she was just about perfection; 2nd, a nice pullet, a little weak in breast color, and not nearly as hard in feather as the 1st; 3rd larger than the two preceding her, but a good pullet taking all sections. Birchens: Cocks all middling good birds, not much to choose from. Hens: the three winners very good hens, and not one much advantage over the other. Cockerels: 1st, not so clean and distinct in lacing as 3rd cockerel, but had the style, reach, length of neck, good wing butts and nice and distinct in body shape; 2nd softer in feather larger in body, and not nearly so good in tail as 1st; 3rd would have been a very good bird, but his neck was so short that it made him look as if they had sent him to the show with a great big shawl round his neck fearing he may get pneumonia. In conclusion, in Games and Game Bantams probably my experience and observations may profit some if not all, and I will briefly give what I have learned in the way of producing good birds. In the early portion of my life, I think I was highly favored in the locality where I was born, and being closely and intimately acquainted with Mr. Entwistle, I used to often visit his yards. At this time he was trying to improve Game Bantams, and he was trying to make in miniature what the Game breeders had made in Standard Game of that day. His course was to use some of the most up-to-date big Game and reduce them to Bantams, and I have seen at his place not once, but a great many times, birds in all stages, from first cross to the sixth cross, trying to get the grand qualities of the big Games into Game Bantams; and from him and Dan Clayton, who only lived ten miles from me, I learnt much. Those two men worked diligently for years with a purpose in view, that they and others, such as Hugo Ainscough and George Furness, have at the present day made more perfect models of high-class Game Bantams than the large Games we see to-day. If we could see the birds which in your December number are so ably described by your correspondent, Rev. J. N. Williams, when he is speaking of Dan Clayton's Bantams, refusing $300 for a cockerel at Kendal show; I have shown birds at Kendal, which is in the north of

England, near to Windermere Lakes, over forty years ago and more; it took great birds in those days to pull off one of the cups at that show, and what must it be to-day, when one of the brown red Bantam cockerels wins $125 in one special, and Mr. Clayton gave the prize, and had two birds there for exhibition, not for competition, which outclasses those which won. I remember when Mr. Clayton was making the brown reds, he did not have such birds then as he has to-day, and what a pleasure this life must have been to him to outdistance all rivals, year after year and to get such prizes for his productions. Two hundred and fifty dollars has become quite a common price for him to get, and sure he doesn't sell his best, but keeps them for his own producers. And when Rev. Mr. Williams tells us of the brown red Bantam cock 1st at Paris shown by Mr. Clayton, winning plate worth $200 and a huge silver medal and £10 in money, besides the regular first prize money, I would willingly give $25 just to see that bird at our Ontario, so that I and all breeders of Game and Game Bantams could see what Mr. Clayton has accomplished in trying to breed high-class brown red Bantams. Every time I read of such things it makes me feel I would like to see those grand specimens early and often.

In conclusion, my advice, especially in Game and Game Bantams, is not how many can we raise. It ought to be how good can we breed them, and my ideas, gained by a long experience, are never to use more in our breeding yards than the best one or two females; and if we have only one good one, why try and get all the chicks from her, for I am sure the good ones come from the good ones and the middling ones come from the middling ones. I am sure of this, or all my experience has been misleading, and results have been with me what I am advocating in this comment of mine. "Quality" should be the only motto for exhibitors, and "Quantity and quality" for utility breeders.

Ornamental Bantams—Without going into such detail, I may just mention a few of the choicest specimens. In buff Cochin Bantams the class as a whole was good, and all the winners of enough merit to get a place at any show. 1st cockerel deserving of especial mention; for Cochin type he had no superior in any of the large Cochins; same may be said of 1st and 2nd hens. Whites; The winning two cocks both very high-class specimens and condition about perfect. Same may be said about first and second hens, almost faultless. 1st cockerel a great model for either a large or Bantam Cochin. 1st and 2nd pullets neat and fine. Black Cochins not a strong class in quantity, but in quality right up at the top notch. Partridge Cochin Bantams in males show a wonderful improvement. Hens: I missed the last year winning hen, though there were some very good females there. None had the color and the clean pencilling of last year's winning hen. Golden Sebright, a heavy class, and I think considerably better than last year, taken as a whole. The same words will surely apply to the silvers. Rose comb blacks not as numerous, but the four birds winning the first prizes quite equal to their predecessors; they have not gone back in quality that is sure. White Poland Bantams still hold their own for quality, showing the breeders are not lacking in their endeavors to produce something better year after year. In white booted, the bearded winners were shown in grand condition, while the majority of unbearded were not shown in quantity or quality as heretofore. In white rose comb Bantams we had the best females we have ever seen.

By L. G. Jarvis, Montreal.

Water Fowl.—Pekin Ducks, a grand lot, nine drakes and eight ducks, old, seven drakes and six ducks, young. First, old drake grand shape, deep

body with neat head and strong bill; second, good shape, hardly as deep in body and a little flat on back; third, short in body and a little coarse in head. First duck hard to fault in any section; second also an extra good one, not as large as first; third of a shorter type. First drake, young, great length, strong bill, neat head; second not as good in shape of body as first; third lacked depth of body. First duck, young, a good one and an easy winner; second lacked size; third a fairly good one but small. Aylesbury, three drakes and three ducks, old, three drakes and four ducks, young. First and second drakes, old, extra fine, fit to meet any company, grand heads, extra fine bills, with immense bodies, pure white in plumage. The same can be said of the ducks, old, and also first and second drake and first and second duck, young. Rouen—a fine exhibit, the winners in males showing more color on breasts and freer from white edging than we have seen for the last year or so, yet we could still like to see greater depth of color on breasts of the males and extending farther down so as to reach the legs. Females a nice lot, several of the winners showing extra fine pencilling, with fine bodies. I noticed several very finely pencilled ducks, yet very faulty in color of upper mandible, solid black instead of having an orange bill with black blotch in centre. Cayuga—seven drakes and seven ducks, old, and seven drakes and eight ducks, young. This was a grand class. While we had last year as good color, I think on the whole they were much larger and better shaped specimens shown this year. Those that received the ribbons were as good as any I ever met with at any exhibit. Indian Runners—thirteen old and young shown. First old drakes and first young duck grand color, clean fawn and free from lacing. A. O. V. ducks, twelve shown; a very good class. Muscovy an extra fine lot, great size and rich in color of plumage.

Geese, Embden.—Twenty-five shown; all good, great size and in grand condition; competition very close and it took some time to place the awards. Toulouse.—Have not seen such a grand lot for years; with grand shaped bodies, most of the specimens showing fine, well developed dew-laps, which add so much to the appearance of the head of this variety—twenty-four shown. Chinese—fourteen shown, some very fine birds, but there was a few specimens showing an African cross. Now we must insist on having the shorter and plumper bodies, slimmer necks, smaller and finer heads, characteristic of this variety. A. O. V.—African, a very fine exhibit indeed, twenty birds shown in fine condition and several extra fine specimens.

Polish, *W. C. B.*—Four cocks, four cockerels, three hens and five pullets, all good birds—a few specimens showed a great deal of purple in color of plumage. Poland, Golden, eleven birds in all on exhibition, a very nice lot. Silver, ten shown, a few good extra ones. White—seven, not a large exhibit but an extra fine lot. Golden Bearded Polands—eight; silver bearded, eight; white bearded—eight; buff laced—eight; although a small exhibit in each variety the quality was good.

French Class.—La Fleche—eight birds shown hardly up to the average at this exhibition. Creve Coeur—twelve shown, a grand lot, good size, good color with finely shaped crests and beards.

Houdans.—Seven cocks eight hens eight cockerels and eight pullets; a grand exhibit competition in old very close. First cock extra large, even in mottling not extra in crest shape but good in color; second not as large or as rich in color of plumage; third crowding second, lacks in shape and size of crest. First, second and third hens very close; first winning on color, I think the finest hen in color I ever saw. First cockerel clean in color, a little too light in color of crest, nice legs and well developed toes; second

some sections too dark; third a little leggy, tail too upright. First pullet a very neat one, colors well defined, nicely formed crest; second a trifle small in crest, hardly as large or as well developed as first; third not nearly as even in mottling.

Dorkings.—White, twelve birds in this variety, a very nice lot. Colored, thirteen, winners very fine, some specimens off very much in breast and body shape. Silvers—thirty-seven birds in all and some grand birds, great sized hens, grand color, but showing brickiness in wings.

Partridge Wyandottes.—Five cocks, five hens, four cockerels and five pullets. First cock good shape, grand striping in hackle and saddle; second a good bird but out of condition; third not as good in color. First hen all Wyandotte in shape, nicely pencilled but a trifle dark; second not as large or as well pencilled, nice shape; third not as evenly pencilled. First and second cockerels very nice. Pullets not as good as the hens, hardly developed.

By R. Oke, London.

Brahmas, Light.—Consisted of fourteen cocks, seventeen hens, fifteen cockerels and fifteen pullets, no doubt the largest class of lights shown at this show for years. First cock a bit short in back, nice neck, good wing; second larger, good shaped back, not matured in feather; third a bit sappy in color, otherwise good. First hen nice shape, finely striped neck, well spread tail with nice coverts; second fails somewhat in size; third close up. First cockerel nice head, finely striped neck, solid flights, nice size and shape; second hardly matured in length of feather, but sappy; third close up. First pullet a bit on the small side, nice color throughout, well spread tail; second fails a bit in color of flights; third another nice pullet, not much to choose between them. Dark—four cocks, seven hens, five cockerels, four pullets. First cock nice condition, good head, finely striped neck and saddle, good in his black; second another nice top colored bird, not so sound in his black; third good size, fails in shape and condition of feather. First hen good size and shape, nice level steel grey top; second another fine hen, excells in pencilling but brown cast to plumage; third fails in shape and pencilling. First cockerel well matured, nice shape and color, wins easy; second has the earmarks of a good one, but too young; third very similar, lacks age. First pullet nice shape and color, well pencilled breast, a bit young; second better matured, but fails in color; third nice color, lacks age.

White Cochins.—Six cocks, six hens, seven cockerels and seven pullets. The two best conditioned cocks had to be turned down for black in plumage. First cock nice shape but badly in moult, well furnished legs and feet; second and third lack condition. First hen nice length of feather, well furnished underneath; second a bit shorter in feather as is third, and not so pure in color. First and second cockerels not much to choose between them, typical shape, pure in color, well furnished legs and feet, want a little more time to develop; third lacks age and length of feather. First, second and third pullets a nice trio, pure in color of plumage, well furnished on legs and feet, shown in nice condition, latter loses on head. Black Cochins, four cocks, five hens, four cockerels and four pullets. First cock nice color and shape, wants more time, hardly ready; second fails in condition as does third, not so well furnished underneath. First hen nice condition, fine color, well furnished; second nice color, fails in size; third lacks condition. Chicks, both cockerels and pullets, too young and short in feather, will improve with age.

Langshans, Black.—Seven cocks, ten hens, seven cockerels, ten pullets. First cock a real good one, nice comb and head, good size and length of limbs, nice color throughout, well furnished tail, a typical Langshan; second not as good in color, fails a little in length of legs; third another good cock but lacks the typical outline of first. First hen good size, typical shape, nice color throughout; second fails a little in color of plumage; third close up. First cockerel good head, typical shape, rich color; second another nice cockerel, good shape and color, wants a little more age; third hardly forward enough and fails in color. First pullet good size and shape, fails in color; second nice rich sheen of plumage, lacks age; third fails in color. White—three cocks, two hens, two cockerels and two pullets. The best conditioned cock I had to turn down for black in plumage. First cock excels in shape as does first hen. Chicks nice shape, hardly pure enough in their color.

Buff Orpingtons.—Fifteen cocks, eighteen hens, thirty-six cockerels, fifty-seven pullets, the latter being the largest class in the show. First cock, to my idea, the best type in Buff males, good depth of body, full and well-rounded breast, medium length of back, might be a trifle longer on leg in proportion to size of body, good fine comb, fails in color at base of neck, hackle and tail, otherwise his color is fairly uniform throughout; second fair head, fails a little in shape of body, not so level in top color; third fails a bit on shape of breast and a little high off the ground. First hen big and shapely, nice level color, neat head, good legs and feet; second fails somewhat in size, fair shape, nice top color; third another good hen, hardly as even in color; fourth nice shape, fails in evenness of color. First cockerel nice head, very even level top color throughout, solid in neck and good tail, a trifle stilty, will no doubt settle down a bit with age, good legs and feet; second nice even color, a little shade dense, fails in breadth of body and not enough day-light between his legs; third good size, fails in color at base of neck and tail, fairly level top color; fourth, probably the least said about this bird the better, as he had been tampered with; fifth, grand top color throughout, nice shape, too fine in bone and a bit under-sized, barring these two defects, I made him a close second. First and second pullets not much to choose between them, nice shaped bodies and level even top color throughout, good legs and feet; third close up, nice shape, even color, fails a bit in size; fourth good in shape, even on top but too dense in color, undercolor uniform throughout; fifth fails a little in breadth of body, not so level top color. A. O. C. Orpingtons—two cocks, two hens, fourteen cockerels and seventeen pullets. First cock a big deep bodied bird, good color and condition; second fails in breadth of body and color of plumage. First hen, big, good type, nice color, shown in good form; second good color, but fails in shape. First cockerel nice deep body, well rounded breast, good color and condition; second very similar in type, fails in color; third fails in depth of body and color throughout; second good head, fails in lobes, nice color, one sickle missing; third fails a little in size, otherwise good. First second nice shaped body, trifle high on legs; third fails in color of plumage.

Minorcas, Black.—Seven cocks, thirteen hens, sixteen cockerels, eighteen pullets. First cock good head, beautiful lobes, nice shaped body, good color throughout; second good head, fails in lobes, nice color, one sickle missing; third fails a little in size, otherwise good. First hen a grand one throughout, nice comb and head, good size and shape, hard to find fault with; second close up, but fails in lobes; third fails a bit in color. First cockerel, about the only fault I could find with him was that his

comb did not follow his neck close enough, beautiful color, nice shaped body and the right type; second and third fail in size, lobes and color. First, second and third pullets nice even lot, fail a bit in shape of comb; fourth fails in lobe and color of plumage.

By Newton Cosh, Port Dover.

Dominiques.—First cock a good one, fair comb, the right type and the best colored specimen in the class; second same type, better comb, but fails in color; third lacks both in shape and color. The balance of the class either lacked color or shape and were a very common lot; plenty of room for improvement in this class.

Next came *Black Javas* with a good class. First cock good comb and head, excellent color and shape; second another good one, loses in comb and shape of body; third loses in shape. First hen a rare good one, plenty of size, shape and marvellous color; second loses in size and color; third not yet ready; some good hens left out with feathers in shanks. First cockerel wins easily, well developed, with good shape and color; second a fair bird; third a grand colored one but too young yet, was frightened at time of judging which spoiled his shape. First pullet a good all round one; second not quite as well shown as first; third good color but lack type. In mottled Javas there were two cocks, first a good one well shown, second not as evenly mottled. First hen in best plumage but shows a little white in ear lobe; second rather stale with a poor tail. Cockerels, very little between first and second; first a trifle better in shape and gloss of plumage; second carries body too erect; third immature. First and second pullets a nice pair; first has a slight advantage in development and gloss of plumage; third lacks shape and not as evenly mottled.

A. O. V.—First cock and first hen to a nice pair of Frizzles; both seconds to a fairly good pair of Columbian Wyandottes. First cockerel went to a Columbian Wyandotte possessing real good type and fair color; second a Frizzle of fair quality; third a Columbian Dot that lacked in type to first. Pullets—first a Frizzle; second Columbian Dot of fair quality; third a fairly good R. I. Red.

Cross Breeds.—A large class, but in the majority of cases I think the cross came about more by accident than with any view of improving the market type. Some of the birds were large but very short in keel and body, making a poor market type.

By J. E. Bennett, Toronto.

Plymouth Rocks.—First came the white Rocks and the finest ever shown in Canada. There were twenty-nine in the cock class. First cock, one of the best I ever saw, hard to find anything the matter with him anywhere, grand in shape and as white as a lily all over; second, a larger bird but not in quite so nice show shape, but a cracker all the same; third another fine large bird, and only fails to the others in color of legs; fourth was grand in shape but just a little off in color to others; fifth fails in shape of back and tail not quite so large as others, but a really good bird; and there were lots of birds left out that should have had a prize but there was nothing for them, and they were no disgrace to their owners. Hens—thirty-seven. First hen like first cock, a grand bird all over, just a little off in comb; second hen a fine large hen, ran first very close, if it had been as nicely fitted as first would have won; third another fine big hen, slightly off in tail, and fails in

leg color to winners; fourth not quite so large a hen but a grand one all over; fifth just as good as the others but not as clean and a little off in leg color; there were eight or ten hens left out that were fit to win anywhere if you could have taken the winners away. Cockerels—thirty-nine, the finest lot ever put together here. First was a very fine large bird, a little off in comb and breast, but I think the best white cockerel ever shown at the Ontario show; second another grand bird, not quite so large as first and fails in comb and breast, but as white as snow and a real good bird; third not quite as nice in shape, a younger bird and one that will be heard from later; fourth another young bird but not so good in color; fifth fails in leg color; there were lots of first-class birds left out that should have been mentioned, but there were no more ribbons. Pullets—forty-three, one of the hottest classes I ever had to judge. First pullet a grand bird all over; a little off in comb and a little flat in shape of breast; second not quite so large as first but a real cracker all over; third fails in leg color and tail; fourth lacks in size to the others; fifth a fine large pullet but off in comb and not as clean, had not been washed; several good pullets left behind. Barred Rocks, Open —nineteen cocks. First cock a good shape, well barred, fine color, tail not all in yet, good legs and comb; second, good even color all through, well barred, off in comb, might be a little higher in legs and longer in body; third, fine large bird, good shape, fairly well barred but fails in legs and color; fourth another fine large bird, well barred but not ready; fifth not as large as the others, off in back and breast. Open, barred hens—twenty-one.—First hen, best barred female in the show, grand color, a nice blue, good shape, fine comb, good legs; second another very fine hen and ran first very tight, a little off in comb, not quite as well barred; third not so good in back color nor nearly as well barred as winners; fourth and fifth, two very fair hens, but not nearly as good as the others. Open cockerels—twenty. First a grand, large bird, a nice blue, even from head to tail; grand shape, fine comb and good legs, one of the best cockerels shown for a long time; second another fine colored bird but loses to first in shape, well barred and should make a good one; third a younger bird and very fine in barring and great in color, but off in shape of breast, when filled out will make a grand bird and hard to beat; they were three real good birds; fourth too young to show well, fails in shape but is a well barred bird and good color; fifth a good colored bird but too much a Wyandotte in shape; I noticed several very fine large cockerels that when filled out will be heard from later. Open pullets—twenty-three. First grand in shape and color, in perfect condition, like the first cockerel a hard one to find fault with; second another about the same as first but a little darker; third not quite so large, nice in color but poor colored eye; fourth very nice pullet, good shape and color, but fails to others in color of legs; fifth loses in shape, fails in color. Taking the whole class together, it was a big improvement to last year's. Buff Rock cocks—four. First cock, grand in color, fine shape and wins easily; second, good color but is off in shape and condition; third, fine large bird, loses to winners in color of tail and wings. Hens—seven. First, a nice even color all through, good shape and fair size; second, a large hen, good shape, not quite so nice and even in color of back; third fails to winners in color all over. Cockerels—nine; first like first cock a winner, grand color, a nice golden buff, all over, good shape, a little off in comb but a real cracker; second not far behind the first, grand shape, large size, not quite so nice in wing and tail; they were two very hard birds to beat; third a very large bird but not so good in shape or color as winner. Pullets—seven; first grand in shape, a nice even buff all through, might be a little larger and better in

color of eye; second a larger pullet but was off in color of tail; third a younger pullet, fails in shape to the others, but will improve with age. Taking buff Rocks, I think they were a real good class and well up to last year. Novice class, barred Rocks—cocks, twelve. First a good large bird, well barred, good color, grand shape, a little short on legs; second a large bird, good shape, a little brassy on back, well barred, off in comb; third another large bird, fair shape but fails in color; fourth and fifth fair birds but nothing extra. Hens—thirteen; first a large fine hen, well barred, good shape, a little dark in neck but otherwise fine hen; second a lighter hen in color, but has not the shape of first; third too dark; fourth and fifth not much. Cockerels—twenty-nine; first, large bird, well barred, and nice color, off in shape, but when filled out will make a good one; he is good in comb and legs; second, the largest Rock cockerel shown, fine shape, good comb, grand legs, but too dark in color; third another big fellow, very much like second, too dark; fourth fair bird, will be better with age; fifth a lighter bird and was nice and even in color, well barred, fair comb, good legs; quite a few good cockerels left. Pullets—twenty-six; first a nice clean blue, well barred one, good in shape, off in comb and pale in legs, looks very much like first at Toronto Industrial; second another very nice pullet, a little lighter in color, well barred, better in comb and legs, a better pullet than first. The day I judged them the two were in one coop and first had second all scared and I could not get her to stand at all. On the next day she was in a coop by herself and looked a different pullet altogether. Third very much like first, good color but bad in legs and comb; fourth not so large, fails in shape, but good color and will make a good pullet; fifth another very fair pullet. I thought the pullet class good.

DRESSED POULTRY.

By W. R. Graham, Guelph.

The display of Dressed Poultry at the Winter Fair this year was perhaps no larger than has been seen in some previous years. The quality in nearly all classes was superior to anything we have had before. There appears to be a steady increase in the number of first class specimens shown, and the number of birds exhibited that are really poor are steadily on the decrease. There were one or two exceptions which were not up to the mark, one of the chickens and one of the turkeys. The best exhibit was in chickens. The exhibit of turkeys was not as large as we should like to have seen. The exhibit of ducks and geese, while not large, was first class in quality.

The Chicken Exhibit.

Rock Cockerels.—The first pair was an exceptionally good pair of chickens, being nice white color and evenly fleshed all over the body. One of the chickens in this pair was perhaps one of the finest chickens ever shown at this show. This bird had a remarkable development of breast meat and an even distribution of fat over all parts of the body. This pair of chickens was awarded the sweepstakes as being the best pair of chickens, all breeds in the show competing. Some fault might have been found with the manner in which these birds were plucked, one of these chickens apparently had been plucked too soon after killing and showed a little red along the back. Per-

sonally, I am of the opinion that it would be better if the chickens were all bled rather than having their necks pulled. Many people do not make a success of killing chickens by pulling the neck; the result is that some otherwise first-class specimens are spoiled by the poor killing.

The second pair failed to the first in flesh on breast in particular. One bird in this pair was too coarse, that is to say the grain of the flesh was coarse and there was coarseness in the bone as indicated by feet and legs.

The third pair was a good pair of chickens, but not finished. They apparently should have been fed a week or ten days longer. They were too high in the breast bone or in other words lacked flesh on the breast.

Rock Pullets. The first pair was of good size and nice quality but they were a little over-done or too fat. This pair no doubt would have been close competitors for the sweepstakes had they not carried an excessive amount of fat. They were particularly good in abundance of flesh on the breast and also length of breast.

The second pair failed in the length of breast, also in general width of body. This pair of pullets were what might be termed short and narrow.

The third pair was very close to second; one pullet was too high in the breast bone and perhaps somewhat lean.

Wyandottes—We have never as yet had a first class exhibit of Wyandottes at this show. We often see first class exhibits at other shows, but for some reason unknown to us the exhibit of Wyandottes at Guelph has not been anywhere near what it should be. It has always been considered that the Wyandottes are a first class market chicken, yet if one were to form his opinion from the exhibits made at Guelph, he would be forced to the conclusion that they were considerably inferior to either Plymouth Rocks or Orpingtons. I simply mention these facts so that the Wyandotte breeders will make sure that another year they have a good exhibit of this breed.

The first pair could not be considered more than ordinary. One cockerel was a very good one but too yellow in color; the other one while better in color was inferior in the amount of flesh carried on the breast and the breast bone was somewhat prominent.

The second pair was good in color, being of a nice white color throughout. Otherwise they were not a good pair of chickens.

The third pair was about the same as the second.

Orpingtons.—The exhibit in Orpingtons was far in advance of anything we have had heretofore. There was not only one good pair but half a dozen first class pairs of chickens. One or two of the best pairs were spoiled in killing, the backs being very red in color. Perhaps no other breed has advanced as rapidly as have the Orpingtons as far as the exhibit of dressed poultry is concerned during the last two or three years.

The first pair was certainly a very excellent pair of chickens. The only fault that might have been found with them was that they were too fat and somewhat patchy, or in other words the fat was not evenly distributed over the carcass. This pair was not extra well dressed, but I presume that with birds as fat as these were, it is an extremely difficult matter to get them as neatly dressed as birds a trifle thinner in flesh. This pair of birds was perhaps the closest competitors to the sweepstakes of any pair of chickens exhibited. They failed to the sweepstakes chickens in being somewhat overdone.

The second pair was not as well fleshed on the breast as the first and were somewhat coarse in the bone.

The third pair was a good pair of chickens but they could have been dressed better.

Minorcas—The exhibit of Minorcas was fairly good. These, of course, are not a market chicken and when dressed do not present as fine an appearance as some of the breeds mentioned previously.

The first pair of Minorcas was of fair size but were too high in the breast bone and presented somewhat of a blue appearance.

The second pair had not nearly as much meat on the breast.

The third pair was poorly dressed, somewhat yellow in color but otherwise perhaps the best shaped pair in the class.

Langshans.—There was undoubtedly the best exhibit in this class this year that has been shown at this show. The first three prizes all went to the same man. Speaking of the three pair they might be said to be three first class pairs of chickens. They were well fleshed; first class color and nicely plucked. For Langshans they carried considerable meat on the breast, much more than we usually see. The skin was fine in texture and the bone not too coarse. The fineness of the texture of the skin, their color and the development of the breast meat were their chief characteristics, or points in which they excelled their competitors.

Leghorns—The exhibit of Leghorns was fairly good. The first pair of Leghorns was, I think, the best ever shown at Guelph. They were well fattened and well dressed and were certainly a credit to the Leghorn class. The rest of the class might be described as an ordinary exhibit of Leghorns which certainly are not a market breed of chickens, especially as roasting chickens.

Dorkings.—The first pair was certainly first class. Had they been evenly matched they would certainly have been close competitors with the Orpingtons and Rocks for the sweepstakes. The one being a cockerel and the other a pullet they made what might be termed an unmatched pair. The exhibit of Dorkings has improved each year and certainly do good credit for this breed.

The second pair was also first class. Taking the display of Dorkings as a class we would, I think, be safe in stating they were the best ever seen in Guelph.

Brahmas.—A fairly good exhibit was made of this breed. The first pair was too coarse in the skin and had not flesh enough on the breast.

The second pair failed in the development of breast meat.

Cochins.—The first pair certainly was a fine pair of Cochins but too yellow in color. The second pair was thin in flesh as compared with the first.

Ducks.—The exhibit of ducks, while not as large as has been seen at some shows, were certainly better than anything seen previously in Guelph.

To the exhibitors in this class I would like to draw attention to the fact that the dressed duck should be wide in the breast as well as long and should carry as much meat as possible on the breast.

White Ducks.—The first pair was in extra fine condition; was nicely dressed; was plenty long enough but failed considerably in width.

The second pair failed to first in size and color, being somewhat creamy or yellow in color.

The third pair was a nice pair of ducks but small.

Colored Ducks.—This was certainly a great exhibit for Guelph. The first pair was of good size; great development of breast meat; fairly well plucked but a little too creamy in color.

There was no very great choice between the second and the third.

Sweepstakes went to the colored ducks. The colored ducks were superior to the white ducks in development of breast meat, but they were inferior to the white ducks in color, perhaps also a trifle in dressing, but the colored

ducks were so large in the development of breast meat and the width of the breast that they were clearly entitled to first place.

Geese.—The first pair was of good size; nice fine grain skin; plenty of breast meat and fat enough. They were also well dressed. I think they were considerably better dressed than those that were exhibited in 1903. If I am correctly informed this pair of geese weighed in the neighborhood of 20 pounds each when dressed or nearly 40 pounds to the pair.

The second pair failed to the first in size, also somewhat in color and meat on the breast.

White Geese.—The first pair was a first class pair of geese, but not quite as well dressed as the colored geese.

The second was not as well fleshed as first prize pair.

The third pair was first class but showed considerable red discoloration. Had it not been for this they might have gone higher.

Turkeys.

Old Toms.—The first was a good broad, thick fleshed turkey, shown in good condition, perhaps a little yellow in flesh.

The second was too high in the breast bone, not broad enough but rather a better color and better quality of flesh than others exhibited in this class.

Old Hens.—These were certainly first-class in every respect. In the first pair, one was about an ideal turkey, the breast being long and extremely well covered with flesh. The other was too high in the breast bone, but better in color.

The second pair failed to the first in plumpness or development of breast meat, also in color.

Young Toms.—The exhibit in this class was good. I cannot give details as the notes I have are not filled out as to the superiority of first, second and third.

Young Hens.—The first was about an ideal pair of young turkeys. They were in good condition, nice white color, well fleshed, breast skin was fine in texture. In texture they would be considered about ideal turkeys for family use. This pair was awarded the sweepstakes for being the best pair of turkeys in the show. This was a surprise to many, but the judges were of the opinion that this pair of turkeys was worth more per pound than any other pair of turkeys exhibited, the flesh being of better quality.

Exhibits of Utility Pens of Chickens.

This branch of the show will stand considerable development. I think we should have separate classes for Plymouth Rocks, Wyandottes, Orpingtons and perhaps any other Utility breed. It appears to me that we are not developing the utility side of our show as much as we should. This may be due to the fact that some of the exhibitors do not take as much interest in the utility as in the fancy. These two sides of the poultry industry go hand in hand. The utility men certainly owe considerable to the fanciers, and the fanciers owe equally as much to the utility men. I can see no reason why we should not have an exhibit of three to five hundred birds in this utility class. Many of the exhibitors, who in previous years have exhibited in the Novice class, might possibly better themselves by paying more attention to the utility class.

This branch of the exhibit was not as large as I had hoped to see, but there was considerable quality in the exhibits made. I was more than disappointed in the exhibit of Plymouth Rocks.

The first prize was awarded to a pen of Orpingtons. The male at the head of this pen was short in the legs, good broad back, good head, indicating strong character, and might be considered an all round good bird with the exception that he was not full enough in the breast. The females in this pen were as good as the male.

The second prize also went to a pen of Orpingtons. The male at the head of this pen failed to the male at the head of the first pen in that his legs were too close together, and further in lack of development of breast. The hens in this pen were probably equal to those in the first.

The third prize was awarded to a pen of White Rocks. The male at the head of this pen was a fairly good one but lacked width in particular. The hens were a trifle too leggy for utility birds.

LIST OF PRIZE WINNERS AT WINTER FAIR, GUELPH, 1904.

CATTLE.

Shorthorns.

Steer, 2 years and under 3. 1 entry.

1. A. Young, Glanworth, Barney, Dec. 1901, S., Prince William, 31054; D., Joan of Arc, Vol. 14.

Steer, 1 year and under 2. 8 entries.

1. W. R. Elliott & Sons, Guelph, Jock, April 1903; S., Matchless Sailor, 36683; D., Rantin Flossie, 43976.
2. J. Brown & Sons, Galt, White Duke, March 1903; S., Little Bobs, 34742; D., May Queen 4th, 29935.
3. J. Fried & Son, Roseville, Beauchamp, Jan. 4th, 1903; S., Beauchamp, 32058; D., Victoria 2nd, Vol. 18.
4. H. B. Webster, Fergus, Stanley Lad, March, 1903; S., Lord Stanley 4th, 22678; D., Maid of Springfield 3rd, 29146.
5. Alf. Hales, Guelph, Captain White, Sept. 24, 1902; S., Lord Lancaster, 35124; D., Erin Lass, 36430.

Steer under 1 year. 6 entries.

1. D. Talbot & Son, Everton, The Granger, Oct. 1903; S., Lord Chesterfield, 40610; D., Hillcrest Favorite, Vol. 19.
2. A. Young, Glanford, Nabisco, Dec. 1903; S., Prince William, 31054; D., Joan of Arc, Vol. 14.
3. A. Young, Glanford, Baron Cuvier; S., Prince William, 31054; D., Edna, Vol. 16.
4. Geo. Amos & Son, Moffatt, Premier, March 3rd, 1904; S., Village Captain, 39904; D., Mary Leslie.
5. J. Brown & Sons, Galt, Kirklevington Duke, Sept. 1903; S., Matchless Duke, 40669; D., Duchess of Kirklevington 9th, 32771.

Cow or Heifer, 3 years and over. 12 entries.

1. Wm. Fleming, London West, Lady Annandale, Vol. 20, Sept. 2nd, 1900; S., McGregor, 27675; D., 12th Lenore of Sylvan, 28689.
2. W. B. Watt's Sons, Salem, Alga Stamford, Vol. 18, May 25, 1900; S., Hillsburg Tom, 26756; D., Daisy Stamford, 27766.
3. Geo. Amos & Son, Moffatt, Martha 4th, Nov. 3, 1899; S., Spicy King, 75717; D., Martha 3rd, 38271.
4. J. Brown & Sons, Galt, Bonnie Lass, 39008, Feb. 17, 1899; S., Bonnie Lad, 25927; D., Indian Lass, Vol. 17.

Heifer, 2 years and under 3. 1 entry.

1. W. B. Watt's Sons, Salem, Matchless 33rd, Vol. 19, Oct. 21, 1901; S., Royal Victor, 34681; D., Matchless of Elmhurst, 9th, 17269.

Heifer, under 2 years. 6 entries.

1. W. B. Watt's Sons, Salem, Queen Ideal, Vol. 21, Sept. 22nd, 1903; S., Royal Prince, 31241; D., Francis Folsom 3rd, 23322.
2. W. B. Watt's Sons, Salem, Tiny Maude, Vol. 20, Oct. 4th, 1902; S., Heir of Neidpath, 20692; D., Elmira Flora, 31470.
3. Geo. Amos & Sons, Moffatt, Lady Hampton, 54215; May 28, 1903; S., Merry Hampton, 73063; D., Monarch Lady.
4. E. Brien & Sons, Ridgetown, Eastern Gem, Vol. 20, April 2, 1903; S., Diamond Chief, 39110; D., Easter Lily, 44047.
5. Leslie & Pearen, Acton, White Rose, May 5th, 1903; S., Lord Lancaster, 35124; D., Maude, 36434.

Best Shorthorn Steer.

1. W. R. Elliott & Sons, Guelph, Jock, April, 1903; S., Matchless Sailor, 36683; D., Rantin Flossie, 43976.

HEREFORD OR POLLED ANGUS.

Steer or Heifer, 2 years and under 3. 3 entries.

1. F. W. Stone Stock Co., Guelph, Sweet Bar, Jan. 20; S., Barbouch, 100989; D., Sweetheart 33, 100988.
2. Jas. Bowman, Guelph, Elm Park Belle 4th, 54035; S., Kyma's Heir, 24835; D., Heather Belle, 22610.
3. Jas. Bowman, Guelph, Elm Park Belle 5th, 54037; S., Oxford King, 24359; D., Elm Park Belle 2nd, 30210.

Steer or Heifer, 1 year and under 2. 5 entries.

1. H. McDougall, Guelph, Ettie, 1064, Nov. 1, 1902; S., Bobs of Rosedale, 482; D., Blooming Rose, 2nd, 1063.
2. F. W. Stone Stock Co., Guelph, Peach Stone, Oct. 14, 1902; S., Stone's Clarence 2nd, 109049; D., Peach 34, 95240.
3 Jas. Bowman, Guelph, Elm Park Mayflower 4th, 63339; S., Kyma's Heir, 24835; D., Kyma of Tweedhill, 17606.
4. F. W. Stone Stock Co., Guelph, Heliotrope, 154622; S., Baronet, 100989; D., Hazel Duchess, 8th, 95237.
5 Jas. Bowman, Guelph, Elm Park Kyma 14th, 63338; S., Oxford King, 24359; D., Elm Park Kyma 6th, 28962.

Steer or Heifer, under 1 year. 4 entries.

1. Jas. Bowman, Guelph, Elm Park Beauty, 72536; S., Black Warrior, 36920; D., Belle of DeLaval 2nd, 53459.
2. Jas. Bowman, Guelph, Elm Park Keepsake, 72538; S., Prince of Benton, 58632; D., Bowman's No. 1, 22689.
3. Sam'l Young, Guelph, Springside, Oct. 24, 1903; S., Oxford King, 24395; D., Coleen of Springside, 555.
4. F. W. Stone Stock Co., Guelph, Sweet Betty, 183708; S., Baronet, 100989; D., Sweetheart 33rd, 100988.

Cow or Heifer, 3 years and over. 5 entries.

1. Sam'l Young, Guelph, Addie Mac, 29313, Nov. 1, 1897; S., Milton of Willow Grove, 18987; D., Agah 2nd, 11793.
2. F. W. Stone Stock Co., Guelph, Peach 28th, 63844, Feb. 9, 1893; S., Roseberry, 44377; D., Peach 16th, 13836.
3. Jas. Bowman, Guelph, Elm Park Belle, 27225; S., Lord Aberdeen 3rd, 20824; D., Heather Belle, 22610.
4. F. W. Stone Stock Co., Guelph, Sweetheart 34th, 121507; Jan. 31, 1901; S., Baronet, 100989; D., Sweetheart 33rd, 100988.

Hereford, Steer or Heifer, under 1 year. 1 entry.

4th prize. F. W. Stone Stock Co., Guelph.

Hereford, Cow or Heifer, 3 years and over. 1 entry.

4th prize. F. W. Stone Stock Co., Guelph.

GALLOWAYS AND DEVONS.

Steer or Heifer, 2 years and under 3. 2 entries.

1. D. McCrae, Guelph, Fairy Rose, 20560; S., Fashoda, 14390; D., Black Rose, 12118.
2. W. J. Rudd, Eden Mills, Harry, Jan. 1902; S., Conqueror, 1053; D., Flora, 1087.

Steer or Heifer, 1 year and under 2. 3 entries.

1. W. J. Rudd, Eden Mills, Peter, Mar. 1903; S., Welsh Pete, 7349; D., Ella, 1128.
2. W. J. Rudd, Eden Mills, Charlie, Jan. 1903; S., Welsh Pete, 7349; D., Florry, 1177.
3. D. McCrae, Guelph, Duchess 16th, 23838; S., Adair, 18493; D., Duchess 13th, 19490.

Steer or Heifer, under 1 year. 3 entries.

1 D. McCrae, Guelph Marion of Holme, Nov. 1903; S., Wedholme, 22684; D., Molly of K., 16908.
2. W. J. Rudd, Eden Mills, Tom, Mar. 1904; S., Welsh Pete, 7349; D., Ella, 1128.
3. D. McCrae, Guelph, Lismore Lassie, Dec. 1903; S., Adair, 18493; D., Lismore Lady, 18491.

Cow or Heifer, 3 years and over. 4 entries.

1. W. J. Rudd, Eden Mills, College Ida, April 1898; S., Tom, 1031; D., Effie 2nd, 1039.
2. D. McCrae, Guelph, Lismore Lady, Jan. 1901; S., Gladstone Boy, 13879; D., Lismore Lass, 12972.
3. D. McCrae, Guelph, Bell Lady, Jan. 1898; S., Contender 4th, (5794); D., Bell 5th, (13156).

GRADES OR CROSSES OF ANY BREED.

Steer, 2 years and under 3. 6 entries.

1. Jas. Leask, Greenbank, Champion Knight, Sept. 1901.
2. W. Hamilton, Guelph, Kruger.
3. Alf. Hales, Guelph, Butcher Boy, Oct. 27, 1901.
4. J. Freid & Son, Roseville, Jock, May 4, 1902.

Steer, 1 year and under 2. 11 entries.

1. J. Brown & Sons, Galt, Freddie B., Dec. 4, 1902.
2. John Dickinson, Eramosa, Percy, Dec. 1902.
3. J. Freid & Son, Roseville, Look-me-over, Dec. 28, 1902.

Steer, under 1 year. 7 entries.

1. John Elliott, Marden, Roan Prince.
2. Peter Stewart, Everton, White Star.
3. Jas. Leask, Greenbank, Money-Maker.
4. H. McDougall, Guelph, Elm Park Prince.

Cow or Heifer, 3 years and over. 3 entries.

1. J. Brown & Sons, Galt, Winter Girl.
2. John Elliott, Guelph, Lady Bruce.
3. Jas. Leask, Greenbank, Bell.

Heifer, 2 years and under 3. 4 entries.

1. J. Wilson & Sons, Fergus, Rose, Sept. 4th, 1901.
2. H. McDougall, Guelph, Ethel, Nov. 8th, 1901.
3. J. Freid & Son, Roseville, Bertia, May 17, 1902.
4. Jas. Leask, Greenbank, Red Rose, Apr. 1902.

Heifer, under 2 years. 6 entries.

1. Jas. Leask, Greenbank, Roan Bell, April 1903.
2. R. W. McKinnon, Coningsby, Rebecca, March 1, 1903.
3. D. Wright, Ponsonby, Seraphina, Sept. 7, 1902.
4. H. McDougall, Guelph.

Three Export Steers. 7 entries.

1. Jas. Leask, Greenbank.
2. J. Brown & Sons, Galt.
3. G. B. Hood, Guelph.
4. J. Brown & Sons, Galt.

Grand Championship, Best Beef Animal.

1. J. Brown & Sons, Galt.

DRESSED CARCASSES.

Pure Breds. 9 entries.

1. W. R. Elliott & Son, Guelph.
2. H. McDougall, Guelph.
3. W. J. Rudd, Eden Mills.
4. E. Brien & Sons, Ridgetown.

Grades or Crosses. 12 entries.

1. H. McDougall, Guelph.
2. Jas. Bowman, Guelph.
3. G. B. Hood, Guelph.
4. Alf. Hales, Guelph.
5. E. Brien & Sons, Ridgetown.

Best Animal sired by Pure-bred Shorthorn Bull. 9 entries.

1. W. R. Elliott & Sons, Guelph.

Export Steer. 12 entries.

1. Jas. Leask, Greenbank.

Grade Steer or Heifer, sired by Pure-bred Aberdeen-Angus Bull. 7 entries.

1. H. McDougall, Guelph, Elm Park Prince; S., Prince of Benton's 58632.
2. R. W. McKinnon, Whitehouse Black Bird; S., Proctor's Black Prince, 34504.
3. H. McDougall, Guelph, Ethel; S., Elm Park Laird, 38840.

Pure-bred or Grade Hereford Steer or Heifer.

1. F. W. Stone Stock Co., Guelph.

Pair Fat Cattle, any age, breed, grade or cross, fed at least two months with Worthington's Canadian Stock Tonic.

2. J. Brown & Sons, Galt. 1. Jas. Leask, Greenbank. 3. J. Freid & Son, Roseville.

Grade Steer or Heifer, fed in the County of Wellington, and owned by Exhibitor at least 3 months previous to the Show. 17 entries.

1. W. Hamilton, Guelph.
2. J. Wilson & Sons, Fergus.

Grade Steer, Sired by Pure-bred Shorthorn Bull. 19 entries.

1. J. Brown & Sons, Galt, Freddie B.
2. Jas. Leask, Greenbank, Champion Knight.
3. Jas. Leask, Greenbank, Jock.

Pair Export Steers. Exhibits must have been fed for at least 2 months previous to Show with Anglo-Saxon Stock Foods. 6 entries.

1. Jas Leask, Greenbank.
2. G. B. Hood, Guelph.

SHEEP.

COTSWOLDS.

Ewe under one year. 13 entries.

1. Snell & Lyons, Snelgrove, R. P. Snell's 903, 32127.
2. Snell & Lyons, Snelgrove, R. P. Snell's 902, 32126.
3. Rawlings & Bailey, Forest, Rawlings' 817, 31390.
4. Snell & Lyons, Snelgrove, R. P. Snell's 904, 32124.
5. Rawlings & Bailey, Forest, Rawlings' 818, 31391.

Wether, one year and under two. 7 entries.

1. E. Brien & Son, Ridgetown, Brien's 71, 1903.
2. J. C. Ross, Jarvis, Thompson 30684, 1903.
3. Snell & Lyons, Snelgrove, Snell's 906, 1903; S., Garne's 346, 19038; D., Snell's 213, 24843.
3. Snell & Lyons, Snelgrove, Snell's 907, 1903; S., Sanderson's King, 29588; D., Snell's 437, 18075.
5. W. E. Wright, Glanworth, Laidlaw's 421, 1903; S., Crown Prince, 19293; D., Stoneside Lass 4th, 21097.

Wether under one year. 13 entries.

1. Rawlings & Bailey, Forest, Bailey's 227, 1904; S., Garne's 86, 24884; D., Bailey's 94, 24376.
2. E. Brien & Sons, Ridgetown, Brien's 91, 1904; S., Joe, 19668; D., Brien's 14, 22256.
3. Rawlings & Bailey, Forest, Bailey's 228, 1904; S., Garne's 86, 24884; D., Bailey's 98, 24378.
4. E. Brien & Sons, Ridgetown, Brien's 90, 1904; S., Joe, 19668; D., Brien's 14, 22256.
5. Rawlings & Bailey, Forest, Bailey's 229, 1904; S., Garne's 86, 24884; D., Bailey's 106, 24379.

Three Wethers under one year. 4 entries.

1. Rawlings & Bailey, Forest. 2. E. Brien & Sons, Ridgetown. 3. J. C. Ross, Jarvis.

Three Ewes under one year. 5 entries.

1. Snell & Lyons, Snelgrove.
2. Rawlings & Bailey, Forest.
3. H. McNelly, Arkell.
4. E. Brien & Sons, Ridgetown.

Dressed Carcass, Wether one year and under two. 4 entries.

1. E. Brien & Sons, Ridgetown.
2. E. Brien & Sons, Ridgetown.
3. J. C. Ross, Jarvis.
4. W. E. Wright, Glanworth.

Dressed Carcass, Wether under one year. 7 entries.

1. E. Brien & Sons, Ridgetown.
2. E. Brien & Sons, Ridgetown.
3. Rawlings & Bailey, Forest.
4. J. C. Ross, Jarvis.

LINCOLNS.

Ewe under one year. 5 entries.

1. J T. Gibson, Denfield, Gibson's 217, 11936.
2. J. T. Gibson, Denfield, Gibson's 219, 11938.
3. L. Parkinson, Eramosa, Parkinson's 407, 12510.
4. L. Parkinson, Eramosa, Parkinson's 408, 12511.
5. J. T. Gibson, Denfield, Gibson's 221, 11940.

Wether one year and under two. 2 entries.

1. J. T. Gibson, Gibson's 203, 11616. 2. J. T. Gibson, Gibson's 202, 11615.

Wether under one year. 5 entries.

1. J. T. Gibson, Denfield, Gibson's 229, 11948.
2. L. Parkinson, Sammy John; S., Dudding's 324, 11153; D., Parkinson's 177, 6792.
3. J. T. Gibson, Denfield, Gibson's 228, 11947.
4. L. Parkinson, Eramosa, Dick; S., Dudding's 324, 11153; D., Parkinson's 187, 6802.
5. J. T. Gibson, Denfield, Gibson's 230, 11949.

Three Wethers under 1 year. 3 entries.

1 J. T. Gibson, Denfield. 2. L. Parkinson, Eramosa. 3. J. T. Gibson, Denfield.

Three Ewes under one year. 4 entries.

1. J. T. Gibson, Denfield.
2. L. Parkinson, Eramosa.
3. J. T. Gibson, Denfield.
4. L. Parkinson, Eramosa.

Dressed Carcass Wether, 1 year and under 2. 1 entry.

1. J. T. Gibson, Denfield.

Dressed Carcass, Wether under 1 year. 2 entries.

1. L. Parkinson, Eramosa.
2. J. T. Gibson, Denfield.

LEICESTERS.

Ewe under one year. 16 entries.

1. John Kelly, Shakespeare, Lady Grey 2nd, 7975, March.
2. John Kelly, Shakespeare, Kelly's Luelle, 7580.
3. Hastings Bros., Crosshill, Lorinda, 7584.
4. John Orr, Galt, Rogers 6, 7878.
5. David Rodger, Ayr, Rodgers 4, 7876.

Wether one year and under two. 7 entries.

1. A. & W. Whitelaw, Guelph, Little Remus, 7530.
2. Hastings Bros., Crosshill, St. Louis Wonder, 7543.
3. John Kelly, Shakespeare, Tom.
4. Hastings Bros., Crosshill, Prize Winner, 7542.

Wether under one year. 14 entries.

1. David Rodger, Ayr, Tom; S., Rodgers 1. 7080; D., Currelly's Jessie, 7002.
2. John Kelly, Kelly's Guy; S., Agamenon 2nd, 5723; D., Miss Stuck, 4122.
3. Hastings Bros., Crosshill, Dainty Will, 7545.
4. John Orr, Galt, Jim; S., Linden, 4145; D., Lottie, 4456.
5. Hastings Bros., Crosshill, Snadd, 7579.

Three Wethers under one year. 6 entries.

1. David Rodger, Ayr.
2. Hastings Bros., Crosshill.
3. Jno. Kelly, Shakespeare.
4. Jno. Orr, Galt.

Three Ewes, under 1 year. 7 entries.

1. John Kelly, Shakespeare.
2. John Orr, Galt.
3. Hastings Bros., Crosshill.
4. David Rodger, Ayr.
5. A. & W. Whitelaw, Guelph.

Dressed Carcass Wether, 1 year and under 2. 4 entries.

1. Hastings Bros., Crosshill.
2. Hastings Bros., Crosshill.

Dressed Carcass Wether, under 1 year. 5 entries.

1. A. & W. Whitelaw, Guelph.
2. John Orr, Galt.
3. John Kelly, Shakespeare.
4. David Roger, Ayr.

OXFORDS.

Ewe under 1 year. 3 entries.

1. J. W. Lee & Sons, Simcoe, Lee's Ewe 86, 31960.
2. J. W. Lee & Sons, Simcoe, Lee's Ewe, 31964.
3. J. W. Lee & Sons, Simcoe, Lee's Ewe, 31965.

Wether under 1 year. 6 entries.

1. W. E. Wright, Glanworth, Jull's 465, 1904.
2. W. E. Wright, Glanworth, Wright's 321.
3. W. E. Wright, Glanworth, Wright's 381.
4. J. W. Lee & Sons, Simcoe, Lee's Wether.
5. J. W. Lee & Sons, Simcoe, Lee's Wether.

Three Wethers under 1 year. 2 entries.

1. W. E. Wright, Glanworth. 2. J. W. Lee & Sons, Simcoe.

Three Ewes under 1 year. 1 entry.

1. J. W. Lee & Sons, Simcoe.

Dressed Carcass Wether, under 1 year. 2 entries.

1. W. E. Wright, Glanworth. 2. W. E. Wright, Glanworth.

SHROPSHIRES.

Ewe, under 1 year. 12 entries.

1. John Campbell, Woodville. Campbell's 1285, 204321, Spring, 1904.
2. Abram Rudell, Hespeler, Rudell's 316, 207934, April.
3. Abram Rudell, Hespeler, Rudell's 313, 207932, April.
4. Lloyd-Jones Bros., Burford.
5. John Campbell, Woodville, Campbell's 1295, 204323.

Wether, 1 year and under 2. 11 entries.

1. John Campbell, Woodville, McKague's 32, 192197.
2. R. Gibson, Delaware, Nugget, 191740, 1903.
3. John Campbell, Woodville, Gladstone, 194634, Sept. 1903.

Wether, under 1 year. 10 entries.

1. R. Gibson, Delaware, Old Post, 204826.
2. John Campbell, Woodville, Campbell's 1296, 204307.
3. John Campbell, Woodville, McKague's 42, 204382.

Three Wethers, under 1 year. 4 entries.

1. John Campbell, Woodville. 2. R. Gibson, Delaware. 3. Lloyd-Jones Bros., Burford.

Three Ewes, under 1 year. 6 entries.

1. A. Rudell, Hespeler. 2. John Campbell, Woodville. 3. W. D. Monkman, Bond Head.

Dressed Carcass Wether, 1 year and under 2. 8 entries.

1. A. Rudell, Hespeler. 2. W. E. Wright, Glanworth. 3. Lloyd-Jones Bros., Burford.

Dressed Carcass Wether, under 1 year. 5 entries.

1. R. Gibson, Delaware.
2. Lloyd-Jones Bros., Burford.
3. W. E. Wright, Glanworth.
4. Lloyd-Jones Bros., Burford.

SOUTHDOWNS.

Ewe, under 1 year. 9 entries.

1. Sir Geo. Drummond, Beaconsfield, Drummond's Ewe 950, 18475.
2. John Jackson & Son, Abingdon, Jackson's Ewe, 70 C., 18702.
3. Sir Geo. Drummond, Beaconsfield, Drummond's 939, 18724.
4. John Jackson & Son, Abingdon, Jackson's Ewe 71 C, 18703.
5. Sir Geo. Drummond, Beaconsfield, Drummond's Ewe 930, 18473

Wether, 1 year and under 2. 6 entries.

1. Sir Geo. Drummond, Beaconsfield, Drummond's Wether 847, 17627.
2. Sir Geo. Drummond, Beaconsfield, Drummond's Wether 869, 17628.
3. John Jackson & Son, Abingdon, Jackson's 26, 1903.
4. Telfer Bros., Paris, Jock, 1903.
5. Telfer Bros., Paris, Tom, 1903.

Wether, under 1 year. 8 entries.

1. Sir Geo. Drummond, Beaconsfield, Drummond's Wether 940, 18472.
2. John Jackson & Son, Abingdon, Jackson's 51.
3. Sir Geo. Drummond, Beaconsfield, Drummond's Wether 897, 18468.
4. Sir Geo. Drummond, Beaconsfield, Drummond's Wether 885, 18476.
5. John Jackson & Son, Abingdon, Jackson's 53.

3 Wethers, under 1 year. 4 entries.

1. Sir Geo. Drummond, Beaconsfield.
2. John Jackson & Son, Abingdon.
3. Sir Geo. Drummond, Beaconsfield.
4. Telfer Bros., Paris.

3 Ewes, under 1 year. 8 entries.

1. Sir Geo. Drummond, Beaconsfield.
2. John Jackson & Son, Abingdon.
3 Telfer Bros., Paris.

Dressed Carcass Wether, 1 year and under 2. 3 entries.

1. Sir Geo. Drummond Beaconsfield.
2 Telfer Bros., Paris.
3. John Jackson & Son, Abingdon.

Dressed Carcass Wether, under 1 year.

1. Sir Geo. Drummond, Beaconsfield.
2. Telfer Bros., Paris.
3. Jnc. Jackson & Son, Abingdon.

DORSET AND MERINOS.

Ewe, under 1 year. 3 entries.

1. R. H. Harding, Thorndale, Henderson's 3910, Dec. 1903.
2. R. H. Harding, Thorndale, Oliva, 3854.
3. John Hunter, Wyoming, Hunter's 61, 3957, Feb. 1904.

Wether, 1 year and under 2. 6 entries.

1. R. H. Harding, Thorndale, Raimer, 3862.
2. R. H. Harding, Thorndale, Bruce, 3859.
3. R. H. Harding, Thorndale, Tom, 3858, April 1903.
4. John Hunter, Wyoming, Count, April 1903.
5. John Hunter, Wyoming, Victor.

Wether, under 1 year. 7 entries.

1. R. H. Harding, Thorndale, Jim, 4028.
2. John Hunter, Wyoming, Mac.
3. John Hunter, Wyoming, Paul.
4. R. H. Harding, Thorndale, Jerry, 4039.
5. John Hunter, Wyoming, Cadet.

Dressed Carcass Wether, 1 year and under 2. 5 entries.

1. John Hunter, Wyoming.
2. R. H. Harding, Thorndale.
3. John Hunter, Wyoming.
4. R. H. Harding, Thorndale.

Dressed Carcass Wether, under 1 year. 6 entries.

1. John Hunter, Wyoming.
2. John Hunter, Wyoming.
3. A. G. H. Luxton, Milton West.
4. R. H. Harding, Thorndale.

HAMPSHIRES AND SUFFOLKS.

Ewe, under 1 year. 4 entries.

1. John Kelly, Shakespeare, Anna, 10443.
2. Telfer Bros., Paris, Telfer Ewe, 13.
3. John Kelly, Blythe Lassie, 10614.

Wether, 1 year and under 2. 4 entries.

1. Telfer Bros., Telfer Wether 2.
2. Telfer Bros., Telfer Wether 3.
3. Telfer Bros., Telfer Wether 4.

Wether, under 1 year. 4 entries.

1. Telfer Bros., Paris, Telfer Wether 5.
2. Telfer Bros., Paris, Telfer Wether 6.

Dressed Carcass Wether 1 year and under 2. 3 entries.

1. Telfer Bros., Paris.
2. Telfer Bros., Paris.

Dressed Carcass Wether under 1 year. 3 entries.

1. Telfer Bros., Paris.

Best Pen of Four Lambs, any breed, grade or cross. 17 entries.

1. Sir Geo. Drummond, Beaconsfield.

Best Fat Sheep, bred and owned by resident of Wellington County. 4 entries.

1. A. & W. Whitelaw, Guelph.
2. L. Parkinson, Eramosa.

Registered Shropshire Wether 1 year and under 2. 11 entries.

1. John Campbell, Woodville.
2. R. Gibson, Delaware.
3. John Campbell.

Registered Shropshire Wether, under 1 year. 9 entries.

1. R. Gibson, Delaware.
2. John Campbell, Woodville.
3. John Campbell.

Three Registered Shropshire Wether Lambs. 4 entries.

1. John Campbell, Woodville.
2. R. Gibson, Delaware.
3. Llyod-Jones Bros., Burford.

Best Grade Shropshire Wether, 1 year old. 8 entries.

1. R. Gibson, Delaware.
2. John Campbell, Woodville.
3. John Campbell, Woodville.

Shropshire Grade, Wether Lamb. 15 entries.

1. R. Gibson, Delaware.
2. John Campbell, Woodville.
3. A. Rudell, Hespeler.

Leicester Pen of Three Ewe Lambs. 2 entries.

1. D. Rodger, Ayr.
2. Dunnett Bros., Clanbrassil.

GRADES OR CROSSES.

Ewe, 1 year and under 2. 5 entries.

1. John Campbell, Woodville.
2. E. Brien & Sons, Ridgetown.
3. J. T. Gibson, Denfield.

Wether, 1 year and under 2. 14 entries.

1. R. Gibson, Delaware.
2. J. T. Gibson, Denfield.
3. John Kelly, Shakespeare.
4. John Campbell, Woodville.

Three Wethers, under 1 year. 11 entries.

1. L. Parkinson, Eramosa.
2. John Campbell, Woodville.
3. J. T. Gibson, Denfield.
4. Hastings Bros., Crosshill.

Wether, under 1 year. 24 entries.

1. R. Gibson, Delaware.
2. L. Parkinson, Eramosa.
3. John Campbell, Woodville.
4. Hastings Bros., Crosshill.
5. J. T. Gibson, Denfield.

Ewe, under 1 year. 11 entries.

1. A. & W. Whitelaw, Guelph.
2. J. T. Gibson, Denfield.
3. John Orr, Galt.
4. John Campbell, Woodville.
5. J. T. Gibson, Denfield.

Ewe or Wether, under 2 years. 10 entries.

1. R. Gibson, Delaware.

Dressed Carcass Wether, 1 year and under 2. 10 entries.

1. A. Rudell, Hespeler.
2. A. Rudell, Hespeler.
3. W. E. Wright, Glanworth.
4. E. Brien & Son, Ridgetown.

Dressed Carcass Wether, under 1 year. 18 entries.

1. A. G. H. Luxton, Milton.
2. H. McNelly, Arkell.
3. W. E. Wright, Glanworth.
4. H. McNelly, Arkell.

SWINE.

Berkshires.

Barrow, 6 months and under 9. 6 entries

1. John Kelly, Shakespeare, Tom, March 5; S., Sambo, 12928; D., Shakespeare, 13685.
2. Wm. Wilson, Brampton, Hasty, March 5th; S., Longfellow 10th, 8863; D., Belle of Milton, 5020.
3. John Kelly, Shakespeare, Dan, March 5; S., Sambo, 12928; D., Shakespeare, 13685.
4. E. Brien & Son, Ridgetown, Roger, March 15; S., Fortune Hero, 6294; D., Dairy Maid 3rd, 6291.
5. Snell & Lyons, Snelgrove, Repeater, April 12, 1904; S., Fairview Charmer, 11626; D., Morning Mist, 6954.

Barrow, under 6 months. 7 entries.

1. Snell & Lyons, Snelgrove, Sam, June 10, 1904; S., Longfellow of H. F., 8633; D., Snelgrove Lass, 10795.
2. Wm. Wilson, Brampton, Andrew; S., Longfellow 10th, 8863; D., W. L. Mayflower.
3. Snell & Lyons, Snelgrove, Dick, June 10, 1904; S., Longfellow of H. F., 8633; D., Snelgrove Lass, 10795.
4. J. S. Cowan, Newry, Fairview Bob, June 12; S., W. L. Jock, 11664; D., W. S. Special, 10914.
5. Snell & Lyons, Snelgrove, Hugh; S., Longfellow of H. F., 8633; D., Snelgrove Lass, 10795.

Sow, 9 months and under 15. 7 entries.

1. Snell & Lyons, Snelgrove, Snelgrove Kate, 13733, Oct. 10, 1903.
2. Snell & Lyons, Snelgrove, Snelgrove Duplicate, 13731, Oct. 10, 1903.
3. Wm. Wilson, Brampton, Omagh Girl.
4. Wm. Wilson, Brampton, W. L. Lena, 13350.

Sow, 6 months and under 9. 9 entries.

1. Wm. Wilson, Brampton, W. L. Susie, 13340.
2. John Kelly, Shakespeare, Shakespeare Belle, 13685, March 5th.
3. R. J. Kerr, Mimosa, Maple Hurst Rose 2nd, 13729, May 2nd.
4. J. S. Cowan, Newry, Fairview Moss Rose, 13724, March 9th.
5. Wm. Wilson, Brampton, W. L. Standard, 13342.

Sow, under 6 months. 8 entries.

1. Wm. Wilson, Brampton, Maple Lodge Jean, 13793.
2. Snell & Lyons, Snelgrove, Snelgrove Mary, 13737.
3. Snell & Lyons, Snelgrove, Snelgrove Lady, 13739.
4. Jas. Hamilton, Shakespeare, Jean Fashion, 13723.
5. Wm. Wilson, Brampton, Maple Lodge Jessie, 13794.

Three Pigs, the Offspring of one Sow. 8 entries.

1. John Kelly, Shakespeare.
2. Wm. Wilson, Brampton.
3. Wm. Wilson, Brampton.
4. Snell & Lyons, Snelgrove.

YORKSHIRES.

Barrow, 6 months and under 9. 6 entries.

1. R. F. Duck & Son, Port Credit, Jock, April 15; S., Oak Lodge Metchley 20th; D., Cecila, 4728.
2. J. E. Brethour, Burford; S., Oak Lodge Julius 6th, 12079; D., Oak Lodge, Cinderella, 106, 10484.
3. J. Featherston & Son, Streetsville, Pine Grove Champion 1st, 15408.
4. R. F. Duck & Son, Port Credit, Bob; S., Oak Lodge Metchley 20th, 13125; D., Cecilia, 4728.

Barrow, under 6 months. 8 entries.

1. J. Featherston & Son, Streetsville, Pine Grove Rustler, June 6th; S., Pine Grove Rufford Prince, 13221; D., Pine Grove Tendella 3rd, 10669.
2. J. E. Brethour, Burford, ————; S., Oak Lodge Midas, 12082; D., Oak Lodge Cinderella, 162.
3. Jas. A. Russell, Precious Corners, Ringleader, June 3rd; S., S. H. Barrowfield Topsman, 12414; D., Dalmeny Queen 6th, 10085.
4. J. Featherston & Son, Streetsville, Pine Grove Rustler 22nd, June 6th; S., Pine Grove Rufford Prince, 13221; D., Pine Grove Tendella 3rd, 10669.
5. J. E. Brethour, Burford, ————; S., Oak Lodge Midas, 12082; D., Oak Lodge Cinderella 162.

Sow, 9 months and under 15. 4 entries.

1. R. F. Duck & Son, Port Credit, Lakeview Queen 2nd, 15628, Nov. 2, 1903.
2. J. Featherston & Son, Streetsville, Pine Grove Tendella 10th, 15953.
3. R. F. Duck & Son, Port Credit, Lakeview Queen 3rd, 15912, March 2, 1903.
4. J. Wilson & Son, Fergus, Monkland Betty 2nd, 13400.

Sow, 6 months and under 9. 14 entries.

1. J. E. Brethour, Burford, Oak Lodge Clara 51st, 15929, March 20th.
2. R. F. Duck & Son, Port Credit, Lakeview Fancy, 15907, March 16th.
3. J. E. Brethour, Burford, Oak Lodge Pride 81st, 15939.
4. J. Featherston & Son, Streetsville, Pine Grove Fan 10th, 15951.
5. R. F. Duck & Son, Port Credit, Lakeview Beauty, 15908.

Sow, under 6 months. 11 entries.

1. J. E. Brethour, Burford, Oak Lodge Cinderella 163, 15928.
2. J. E. Brethour, Burford, Oak Lodge Queen Bess 70, 15941.
3. J. E. Brethour, Burford, Oak Lodge Queen Bess 71, 15942.
4. J. Wilson & Sons, Fergus, Monkland Maggie, 15946.
5. J. Featherston & Son, Streetsville, Pine Grove Sequel 2nd, 15955.

Three Pigs, the Offspring of 1 Sow. 7 entries.

1. R. F. Duck & Son, Port Credit.
2. J. E. Brethour, Burford.

TAMWORTHS.

Barrow, 6 months and under 9. 4 entries.

1. D. Douglas & Son, Mitchell, Reuben; S., Ralph, 1384; D., Model Queen, 3064.
2. Wm. Elliott, Galt, Jonah; S., Englewood's Prince, 3874; D., Ruberta, 2511.
3. D. Douglas & Son, Mitchell, Colonel; S., Ralph, 1384; D., Clara, 3601.

Barrow, under 6 months. 6 entries.

1. Wm. Elliott, Galt, Jim; S., Englewood's Fireman, 3624; D., Blain's Gem, 3463.
2. D. Douglas & Sons, Mitchell, Alfred; S., Ralph, 1384.
3. D. Douglas & Sons, Mitchell, Wilson; S., Ralph, 1384.
4. H. German, Johnny; S., German's Hero, 3794; D., Cold Spring Fashion, 3608.

Sow, 9 months and under 15. 4 entries.

1. A. C. Hallman, Breslau, Glenside Susie, 3917, Jan.
2. H. German, St. George, Thrifty Pink, 3871.
3. H. German, St. George, Thrifty Pink 2nd, 4021.
4. Wm. Elliott, Galt, Englewood's Gem 4th, 3873.

Sow, 6 months and under 9. 8 entries.

1. A. C. Hallman, Breslau, Glenside Kate, 3919.
2. D. Douglas & Son, Mitchell, Little Jess, 4025.
3. D. Douglas & Son, Mitchell, Blue Bell, 4023.
4. A. C. Hallman, Breslau, Glenside Annie, 3918.
5. H. German, St. George, Lottie, 4019.

Sow, under 6 months. 6 entries.

1. D. Douglas & Son, Mitchell, Gertrude, 4024.
2. D. Douglas & Son, Mitchell, Sophia, 4027.
3. Wm. Elliott, Galt, Englewood's Gem 6th.
4. D. Douglas & Son, Mitchell, Violet, 4028.
5. H. German, St. George, Thrifty Flower, 3896.

Three Pigs, the Offspring of 1 Sow. 4 entries.

1. D. Douglas & Son, Mitchell.
2. D. Douglas & Son, Mitchell.
3. H. German, St. George.

CHESTER WHITES.

Barrow, 6 months and under 9. 4 entries.

1. D. DeCourcy, Bornholm, General Roberts; S., Conqueror, 2039; D., Long Mag, 2126.
2. W. E. Wright, Glanworth, Joe; S., Sunnyside Boy, 2561; D., Blossom, 704.
3. W. E. Wright, Glanworth, Billy; S., Sunnyside Boy, 2561; D., Blossom, 704.

Barrow, under 6 months. 4 entries.

1. D. DeCourcy, Bornholm, Mike; S., Bornholm King, 2209; D., Perth Bienty, 2503.
2. W. E. Wright, Glanworth, Sam; S., Cedar Grove King, 2713; D., Snowdrop, 2124.
3. W. E. Wright, Glanworth, Jumbo; S., Cedar Grove King, 2713; D., Snowdrop, 2124.
4. D. DeCourcey, Bornholm, Dan; S., Bornholm King, 2209; D., Perth Bienty, 2503.

Sow, 9 months and under 15. 2 entries.

1. D. DeCourcy, Bornholm, White Bienty, 3073.
2. W. E. Wright, Glanworth, Lizzie, 3175.

Sow, 6 months and under 9. 4 entries.

1. D. DeCourcy, Bornholm, Aunt Jane, 3068.
2. W. E. Wright, Glanworth, Kate, 3051.
3. D. DeCourcey, Bornholm, Anne, 3069.
4. W. E. Wright, Glanworth, Sally, 3053.

Sow, under 6 months. 3 entries.

1. W. E. Wright, Susan, 3176.
2. D. DeCourcy, Lady D., 3189.
3. D. DeCourcy, Lady E., 3190.

3 Pigs, the Offspring of one Sow. 2 entries.

1. D. DeCourcy, Bornholm.
2. W. E. Wright, Glanworth.

ANY OTHER BREED, GRADE OR CROSS.

Barrow, 6 months and under 9. 5 entries.

1. E. Brien & Sons, Ridgetown.
2. J. Featherston & Son, Streetsville.
3. J. Wilson & Sons, Fergus.
4. Wm. Elliott, Galt.

Barrow, under 6 months. 10 entries.

1. E. Brien & Sons, Ridgetown.
2. Snell & Lyons, Snelgrove.
3. J. Featherston & Son, Streetsville.
4. D. Douglas & Sons, Mitchell.
5. D. DeCourcy, Bornholm.

Sow, 6 months and under 9. 6 entries,

1. J. Featherston & Son, Streetsville.
2. J. Featherston & Son, Streetsville.
4. E. Brien & Sons, Ridgetown.
3. Wm. Wilson, Brampton.

Sow, under 6 months. 10 entries.

1. D. DeCourcy, Bornholm.
2. Snell & Lyons, Snelgrove.
3. Wm. Elliott, Galt.
4. Wm. Elliott, Galt.
5. J. Featherston & Son, Streetsville.

Special—Berkshire Barrow, any age. 4 entries.

1. John Kelly, Shakespeare.

Special—Yorkshire Barrow, any age. 6 entries.

1. R. F. Duck & Son, Port Credit.

Special—Tamworth Barrow, any age. 2 entries.

1. D. Douglas & Son, Mitchell.

Special—Chester White Barrow, any age. 2 entries.

1. D. DeCourcy, Bornholm.

EXPORT BACON HOGS.

3 Pure-breds. 33 entries.

1. R. F. Duck & Son, Port Credit.
2. J. E. Brethour, Burford.
3. J. Featherston & Son, Streetsville.
4. G. B. Hood, Guelph.
5. J. E. Brethour, Burford.
6. D. Douglas & Son, Mitchell.
7. J. E. Brethour, Burford.
8. Chas. Currie, Morriston.
9. H. German, St. George.
10. R. F. Duck & Son, Port Credit.
11. J. Wilson & Sons, Fergus.

3 Grades or Crosses. 12 entries.

1. Jas. Rettie, Norwich.
2. Jas. Rettie, Norwich.
3. J. Featherston & Son, Streetsville.
4. J. Featherston & Son, Streetsville.
5. D. Douglas & Sons, Mitchell.
6. Chas. Currie, Morriston.

3 Export Bacon Hogs, any breed. 11 entries.

1. R. F. Duck, Port Credit.

Three Pure-Bred Carcasses. 29 entries.

1. R. F. Duck & Son, Port Credit.
2. J. E. Brethour, Burford.
3. Jas. A. Russell, Precious Corners.
4. Chas. Currie, Morriston.
5. W. R. Elliott & Sons, Guelph.
6. J. Featherston & Son, Streetsville.
7. Chas. Currie, Morriston.
8. R. F. Duck & Son, Port Credit.
9. J. E. Brethour, Burford.
10. J. E. Brethour, Burford.

Three Grades or Crosses, Carcasses. 12 entries.

1. Jas. Rettie, Norwich.
2. F. W. Stone Stock Co., Guelph.
3. P. D. Ede, Oxford Centre.
4 Jas. Rettie, Norwich.
5. J. Featherston & Son, Streetsville.
6. Chas. Currie, Morriston.
7. D. Douglas & Son, Mitchell.

Three Carcasses, any breed. 11 entries.

1. R. F. Duck & Son, Port Credit.

Pen of Four Hogs, any breed, Pure-bred or Cross. 9 entries.

1. R. F. Duck & Son, Port Credit.
2. J. E. Brethour, Burford.

Special—Best Pair fed with Anglo-Saxon Stock Food. 9 entries.

1. R. F. Duck & Son, Port Credit.
2. J. E. Brethour, Burford.

DAIRY TEST, PROVINCIAL WINTER FAIR, GUELPH, 1904.

Class 42, Section 1.—Shorthorn, cows 36 months and over.

Name and Owner.	Lbs. milk.	Per cent. fat.	Lbs. fat.	Lbs. solids not fat.	Points for days in milk.	Points for fat.	Points for solids not fat.	Total points.
1st Kennedy Queen, James Brown, Norval	100.0	4.05	4.05	9.98	.....	81.0	39.92	120.92
2nd Canadian Queen, J. W. Armstrong, Speedside	89.13	4.7	4.22	8.37	1.9	84.40	33.48	119.78
3rd Bonny Doon, L. D. Currie, Hillsburg	103.13	3.7	3.84	9.65	.....	76.89	38.60	115.40
4th Beauty of Woodside, H. J. Davis, Woodstock	99.4	3.25	3.22	8.81	.4	64.40	35.24	100.04

Class 42, Section 2.—Shorthorn, heifers under 36 months.

1st Miss Canada, Jas. Brown, Norval	68.7	3.6	2.35	5.72	.8	17.0	22.88	70.68

Class 44, Section 1.—Holstein, cows 36 months and over.

1st Ianthe Jewel of Mechthilde, Jas. Rettie, Norwich	118.15	3.95	4.69	11.60	.....	93.8	46.40	140.2
2nd Queen De Kol 3rd, Jas. Rettie, Norwich	105.8	4.65	4.90	9.87	.....	98.0	39.48	137.48
3rd Queen Peitertje Mercedes, G. W. Rice, Tillsonburg	129.2	3.35	4.32	12.02	1.1	86.4	48.08	135.58
4th Adelaide Brooks, De Kol, G. W. Rice, Tillsonburg	122.1	3.45	4.21	11.60	1.6	84.2	46.40	132.20
5th Clarice, W. S. Schell, Woodstock	114.12	3.4	3.90	11.10	.....	78.0	44.40	122.40
6th Maud of Kent, P. D. Ede, Oxford Centre	120.12	3.15	3.80	11.24	.....	76.0	44.96	120.96
7th Abbe Mercena, O.A.C., Guelph	89.9	3.95	3.53	8.33	.....	70.6	33.32	103.92

Class 44, Section 2.—Holstein, heifers under 36 months.

1st Mercena Schulling, Jas. Rettie, Norwich	101.5	3.45	3.49	9.17	.7	69.8	36.68	106.58
2nd Belle Dewdrop, G. W. Rice, Tillsonburg	100.6	3.4	3.41	9 05	1.6	68.2	36.20	106.00
3rd Buffalo Girl Posch, P. D. Ede, Oxford Centre	98.9	2.9	2.59	8.14	.....	51.8	32.56	84.36

Class 45, Section 1.—Jersey, cows 36 months and over.

1st Florence of Norval, S. J. Lyons, Norval	58.4	4.35	2.63	5.69	5.7	50.60	22.76	79.06
2nd Bashful Daisy, S. J. Lyons, Norval	45.0	5.3	2.38	4.63	8.8	47.60	18.52	74.92

Class 45, Section 2.—Jersey, heifers under 36 months.

2nd Anna Dobbins, O.A.C., Guelph	32.10	4.8	7.56	3.20	8.4	31.2	12.80	52.40
3rd Kalopathakes, O.A.C., Guelph	24.1	3.3	7.03	2.31	8.3	20.6	9.24	38.14

Class 47, Section 1.—Grade, cows 36 months and over.

1st Pearl, P. D. Ede, Oxford Centre	127.14	3.65	4.66	11.86	.....	93.2	47.44	140.64
2nd Violet, H. McDougall, Guelph	107.2	3.9	4.17	10.37	.....	83.40	41.48	124.88
3rd Molly, O.A.C., Guelph	71.6	3.9	2.78	6.63	9.3	55 6	26.52	91.41

Class 47, Section 2.—Grade, heifers under 36 months.

2nd Rena, O.A.C., Guelph	26.6	5.6	1.47	2.74	10.	29.4	10.96	50.36
3rd Lucy 2nd, O.A.C., Guelph	43.9	2.85	1.24	3.75	10.	24.8	15.00	49.80

JUDGING COMPETITION.

Swine.

Possible score 150.

1st F. H. Dennis	144	6th G. R. Bell	131
2nd F. M. Logan	141	7th H. A. Craig	126
3rd J. Baker	140	8th G. D. McVicar	118
4th G. E. Sanders	138	9th R. Elliott	115
5th D. H. Jones	135	10th H. S. Hosmer	110

Sheep.

Highest possible score 150.

1st A. L. McCredie	140	6th C. W. Esmond	115
2nd J. A. Telfer	138	7th M. A. Jull	110
3rd E. D. Eddy	131	8th G. G. Whyte	108
4th R. E. Mortimer	128	9th G. C. Montgomery	103
5th A. Bray	125	10th F. M. Logan	101

Beef Cattle.

Highest possible score 100.

1st H. B. Smith	80	6th R. E. Mortimer	74
2nd J. Baker	78	7th T. C. Morgan	73
3rd C. Gardiner	77	8th J. C. Harkness	72
4th J. M. McCallum	76	9th H. A. Craig	66
5th G. D. McVicar	75	10th A. Young	65

Dairy Cattle.

Highest possible score 100.

1st G. H. Carpenter	75	6th J. A. Clark	55
2nd H. G. McKay	71	7th E. H. Porter	53
3rd A. Mason	67	8th G. E. Sanders	52
4th C. W. Esmond	64	9th F. C. Nunnick	50
5th H. B. Smith	58	10th M. C. Brownlee	49

POULTRY.

Brahmas, Light.

Cocks, 14.—1st, J. J. Pickard; 2nd and 3rd, Geo. A. Tossey; 4th, J. J. Pickard.
Hens, 17.—1st and 2nd, Geo. A. Tossey; 3rd, J. J. Pickard; 4th, John McDonell.
Cockerels, 14.—1st and 3rd, Geo. A. Tossey; 2nd and 4th, J. J. Pickard.
Pullets, 15.—1st, 3rd and 4th. Geo. A. Tossey; 2nd, A. Lewis.

Brahmas, Dark.

Cocks, 4.—1st and 3rd, L. C. Sage; 2nd, C. A. R. Tilt.
Hens, 7.—1st and 3rd, L. C. Sage; 2nd, C. A. R. Tilt.
Cockerels, 5.—1st and 2nd, C. A. R. Tilt; 3rd, L. C. Sage.
Pullets, 4.—1st and 3rd, L. C. Sage; 2nd, C. A. R. Tilt.

Cochins, Buff.

Cocks, 4.—1st, H. Wyatt; 2nd and 3rd, A. W. Bell.
Hens, 6.—1st, H. Wyatt; 2nd, C. A. Stewart; 3rd, A. W. Bell.
Cockerels, 11.—1st and 2nd, H. Wyatt; 3rd, A. W. Bell.
Pullets, 11.—1st, 2nd and 3rd, H. Wyatt.

Cochins, Partridge.

Cocks, 5.—1st, R. Oke; 2nd, G. J. Lawrie; 3rd, F. Wales.
Hens, 5.—1st, R. Oke; 2nd and 3rd, W. G. Murray.
Cockerels, 4.—1st, R. Oke; 2nd, F. Wales; 3rd, W. G. Murray.
Pullets, 4.—1st, W. G. Murray; 2nd, W. G. Murray, 3rd, R. Oke.

Cochins, Black.

Cocks, 4.—1st and 2nd, W. G. Murray; 3rd, L. Glanville.
Hens, 5.—1st, 2nd and 3rd, W. G. Murray.
Cockerels, 4.—1st and 2nd, W. G. Murray; 3rd, L. Glanville.
Pullets, 4.—1st and 3rd, W. G. Murray; 2nd, Readwin & Steffler.

Cochins, White.

Cocks, 6.—1st, 2nd and 3rd, W. G. Murray.
Hens, 6.—1st, M. E. Gough; 2nd and 3rd, W. G. Murray.
Cockerels, 7.—1st, H. Wyatt; 2nd, and 3rd, W. G. Murray.
Pullets, 7.—1st and 2nd, H. Wyatt; 3rd, W. G. Murray.

Langshans, Black.

Cocks, 7.—1st, Slessor & McCracken; 2nd, R. McCurdy; 3rd, C. A. R. Tilt.
Hens, 10.—1st, 2nd and 3rd, C. A. R. Tilt.
Cockerels, 9.—1st and 2nd, R. McCurdy; 3rd, C. A. R. Tilt.
Pullets, 10.—1st, R. McCurdy; 2nd, Slessor & McCracken; 3rd, C. A. R. Tilt.

Langshans, White.

Cocks, 3.—1st and 2nd, W. J. Teale.
Hens, 2.—1st and 2nd, W. J. Teale.
Cockerels, 2.—1st and 2nd, W. J. Teale.
Pullets, 2.—1st and 2nd, W. J. Teale.

Barred Plymouth Rocks.

Cocks, 19.—1st, J. R. Boyce; 2nd, I. K. Millard; 3rd, I. T. Knight; 4th and 5th, N. Cosh.
Hens, 21.—1st, J. R. Boyce; 2nd, N. Cosh; 3rd, E. Snyder; 4th, I. K. Millard; 5th, Wm. Oakley.
Cockerels, 20.—1st, Wm. McLoud; 2nd, Wm. Oakley; 3rd, J. R. Boyce; 4th, N. Cosh; 5th, Wm. McLoud.
Pullets, 23.—1st and 2nd, I. K. Millard; 3rd, N. Cosh; 4th, Wm. Oakley; 5th, Wm. McLoud.

Barred Plymouth Rocks (Novice).

Cocks, 12.—1st, Chas. Hockin; 2nd, Smith & Browne; 3rd, W. H. Switzer; 4th, W. J. Alexander; 5th, F. Westbury.
Hens, 13.—1st, Chas Hockin; 2nd, F. Westbury; 3rd, J. Alexander; 4th, Bremar Stock Farm; 5th, A. A. Armstrong.
Cockerels, 29.—1st, Chas. Hockin; 2nd, T. J. Ashman & Son; 3rd, F. Westbury; 4th and 5th, D. Marr.
Pullets, 26.—1st and 2nd, Chas. Hockin; 3rd, F. Westbury; 4th, D. Marr; 5th, Chas. Hockin.

White Plymouth Rocks.

Cocks, 29.—1st, H. H. Wallace; 2nd, 3rd and 5th, A. G. Brown; 4th, H. A. Hagen.
Hens, 37.—1st, H. H. Wallace; 2nd and 4th, H. A. Hagen; 3rd, A. G. Brown; 5th, Thos. Rice.
Cockerels, 39.—1st, Daly & Dill; 2nd, H. H. Wallace; 3rd, Fred A. Andrews; 4th, Thos. Rice; 5th, Daly & Dill.
Pullets, 31.—1st, H. H. Wallace; 2nd, Daly & Dill; 3rd, Fred. A. Andrews; 4th, Thos. Rice; 5th, H. A. Hagen.

Buff Plymouth Rocks.

Cocks, 4.—1st, J. R. Boyce; 2nd and 3rd, G. A. Ionson.
Hens, 7.—1st, G. A. Ionson; 2nd and 3rd, J. R. Boyce.
Cockerels, 9.—1st and 3rd, G. A. Ionson; 2nd, J. R. Boyce.
Pullets, 7.—1st and 2nd, G. A. Ionson; 3rd, J. A. Harron.

Golden-Laced Wyandottes.

Cocks, 8.—1st, J. H. Magill; 2nd, W. Lemon; 3rd, Wright & Leslie.
Hens, 7.—1st, W. Lemon; 2nd, J. H. Magill; 3rd, Daniel & Gofton.
Cockerels, 8.—1st and 3rd, J. H. Magill; 2nd, Daniel & Gofton.
Pullets, 12.—1st and 3rd, J. H. Magill; 2nd, W. Lemon.

Silver-Laced Wyandottes.

Cocks, 8.—1st, Henderson & Billings; 2nd, Jas. Arthur; 3rd, Readwin & Steffler.
Hens, 8.—1st, Jas. Arthur; 2nd, J. C. Montgomery; 3rd, Henderson & Billings.
Cockerels, 8.—1st and 2nd, Jas. Arthur; 3rd, W. Lemon.
Pullets, 9.—1st, F. W. Krouse; 2nd, W. Lemon; 3rd, Jas. Arthur.

Black Wyandottes.

Cocks, 6.—1st, R. Dinner; 2nd, R. Oke; 3rd, G. & J. Bogue.
Hens, 4.—1st, G. & J. Bogue; 2nd and 3rd, F. P. McDonnell.
Cockerels, 7.—1st, R. Dinner; 2nd, F. P. McDonnell; 3rd, G. & J. Bogue.
Pullets, 6.—1st, G. & J. Bogue; 2nd, Readwin & Steffler; 3rd, G. & J. Bogue.

Buff Wyandottes.

Cocks, 8.—1st and 3rd, A. W. Graham; 2nd, Spry & Mick.
Hens, 10.—1st and 3rd, S. T. Bartlett; 2nd, Hoover & Nighswander.
Cockerels, 14.—1st, A. W. Graham; 2nd and 3rd, S. T. Bartlett; 4th, Spry & Mick.
Pullets, 17.—1st, Geo. C. Hamilton; 2nd and 3rd, S. T. Bartlett; 4th, Jas. Dundas.

White Wyandottes.

Cocks, 18.—1st, J. A. Carroll; 2nd, W. R. Curtis & Co.; 3rd, John S. Martin; 4th, L. H. Baldwin.
Hens, 25.—1st, J. Sidney Starling; 2nd, W. R. Curtis & Co.; 3rd, John S. Martin; 4th, John S. Martin; 5th, Geo. Brierly.
Cockerels, 42.—1st, E. A. Pickering; 2nd, A. Devitt; 3rd, John S. Martin; 4th, L. H. Baldwin; 5th, W. R. Curtis & Co.
Pullets.—1st, 4th, 5th, J. Colter; 2nd, Geo. Elliott; 3rd, W. R. Curtis.

Partridge Wyandottes.

Cocks, 5.—1st, 2nd and 3rd, T. H. Scott.
Hens, 5.—1st, L. C. Sage; 2nd and 3rd, T. H. Scott.
Cockerels, 4.—1st and 2nd, T. H. Scott; 3rd, S. T. Bartlett.
Pullets, 6.—1st, 2nd and 3rd, T. H. Scott.

Dominiques.

Cocks, 3.—1st, M. T. Burn; 2nd, G. & J. Bogue; 3rd, A. Fink.
Hens, 3.—1st, Telfer Bros.; 2nd, M. T. Burn; 3rd, G. & J. Bogue.
Cockerels, 4.—1st, Telfer Bros.; 2nd, A. Fink; 3rd, G. & J. Bogue.
Pullets, 4.—1st, Telfer Bros.; 2nd, G. & J. Bogue, 3rd, A. Fink.

Black Javas.

Cocks, 4.—1st, John Colson; 2nd, R. Oke; 3rd, C. J. Daniels.
Hens, 8.—1st, W. R. Knight; 2nd, C. J. Daniels; 3rd, R. Oke.
Cockerels, 4.—1st, R. Oke; 2nd, John Colson; 3rd, G. & J. Bogue.
Pullets, 5.—1st, G. & J. Bogue; 2nd, R. Oke; 3rd, C. J. Daniels.

A. O. C. Javas.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 4.—1st, R. Oke; 2nd, G. & J. Bogue; 3rd, W. H. Reid.
Cockerels, 4.—1st, G. & J. Bogue; 2nd, R. Oke; 3rd, W. H. Reid.
Pullets, 4.—1st, G. & J. Bogue; 2nd, W. H. Reid; 3rd, R. Oke.

Black Red Game.

Cocks, 7.—1st, W. H. Butler; 2nd, Wm. Barber; 3rd, W. A. Henderson; 4th, John Crowe.
Hens, 11.—1st, W. H. Butler; 2nd, Wm. Barber; 3rd, John Crowe.
Cockerels, 11.—1st, W. H. Butler; 2nd, W. J. James; 3rd, Wm. Barber.
Pullets, 14.—1st and 2nd, W. H. Butler; 3rd, John W. Roberts; 4th, W. J. James.

Brown Red Game.

Cocks, 2.—1st and 2nd, Tyson & McMaster.
Hens, 4.—1st, 2nd and 3rd, Tyson & McMaster; 4th, A. G. H. Luxton.
Cockerels, 6.—1st and 2nd, A. G. H. Luxton; 3rd, Tyson & McMaster.
Pullets, 6.—1st and 2nd, Tyson & McMaster; 3rd, Wm. Barber; 4th, Tyson & McMaster.

Duckwing Game.

Cocks, 7.—1st, Dr. J. H. Bastien; 2nd, Geo. Vance; 3rd, Wm. Barber.
Hens, 9.—1st and 2nd, Wm. Barber; 3rd, Jas. Philpott & Sons.
Cockerels, 4.—1st and 2nd, W. A. Henderson, 3rd, Geo. Vance.
Pullets, 8.—1st, Geo. Vance; 2nd, W. A. Henderson; 3rd, Wm. Barber.

Pile Game.

Cocks, 5.—1st, Wm. Barber; 2nd, Telfer Bros.; 3rd, Thos. Sherlock.
Hens, 5.—1st, Wm. Barber; 2nd, Thos. Sherlock; 3rd, Jas. Philpott.
Cockerels, 5.—1st, 2nd and 3rd, Thos. Sherlock.
Pullets, 3.—1st, Thos. Sherlock; 2nd, Telfer Bros.

Indian Game.

Cocks, 9.—1st, John Modlin; 2nd, J. W. Nixon; 3rd, R. K. Marshall.
Hens, 12.—1st and 3rd, J. W. Nixon; 2nd, John Modlin; 4th, R. Dinner.
Cockerels, 9.—1st and 3rd, J. W. Nixon; 2nd, J. A. Carroll.
Pullets, 8.—1st, J. W. Nixon; 2nd, J. W. Nixon; 3rd, R. Dinner.

A. O. V. Game.

Cocks, 4.—1st, C. J. Daniels; 2nd, M. T. Burn; 3rd, W. H. Reid.
Hens, 4.—1st, C. J. Daniels; 2nd, W. H. Reid; 3rd, M. T. Burn.
Cockerels, 5.—1st, C. J. Daniels; 2nd, M. T. Burn; 3rd, Tyson & McMaster.
Pullets, 5.—1st, C. J. Daniels; 2nd, Wm. Barber; 3rd, Tyson & McMaster.

White R. C. Leghorns.

Cocks, 7.—1st and 3rd, W. G. Murray; 2nd, R. Oke.
Hens, 9.—1st, Readwin & Steffler; 2nd, W. G. Murray; 3rd, R. Oke.
Cockerels, 11.—1st, W. J. Bell; 2nd, A. & T. Readwin & Steffler; 3rd, Thos. Finn.
Pullets, 9.—1st and 3rd, Thos. Finn; 2nd, W. J. Bell.

S. C. White Leghorns.

Cocks, 17.—1st, Dr. R. C. Coates; 2nd, Thos. Rice; 3rd and 4th, Ferguson & Orr.
Hens, 27.—1st and 2nd, Thos. Rice; 3rd, Dr. R. C. Coates; 4th, W. H. Fullerton; 5th, A. & T. Readwin & Steffler.
Cockerels, 42.—1st, Thos. Rice; 2nd, Dr. R. C. Coates; 3rd, Grier & Pratt; 4th, Dr. R. C. Coates; 5th, Thos. Rice.
Pullets, 27.—1st and 2nd, Thos. Rice; 3rd and 5th, Geo. Brierly; 4th, F. Wales.

Black Leghorns.

Cocks, 5.—1st, F. W. Hodgkin; 2nd, W. M. Osborne; 3rd, A. E. Doan.
Hens, 10.—1st, W. G. Murray; 2nd and 3rd, W. M. Osborne.
Cockerels, 12.—1st, W. G. Murray; 2nd, F. W. Hodgkin; 3rd, Wm. M. Osborne; 4th, A. & T. Readwin & Steffler.
Pullets, 10.—1st, W. G. Murray; 2nd, A. & T. Readwin & Steffler; 3rd, W. M. Osborne.

R. C. Brown Leghorns.

Cocks, 7—1st, W. C. Wilson & Son; 2nd, J. R. Boyce; 3rd, W. G. Murray.
Hens, 10.—1st, W. C. Wilson & Son; 2nd, Wm. Cadman; 3rd, T. J. Conley.
Cockerels, 19.—1st, Hoover & Nighswander; 2nd, Wm. Cadman; 3rd, W. G. Murray; 4th, W. C. Wilson & Son.
Pullets, 10.—1st, W. C. Wilson & Son; 2nd, T. J. Conley; 3rd, Henderson & Billings.

S. C. Brown Leghorns.

Cocks, 15.—1st, G. G. Henderson; 2nd and 4th, Dewar Bros.; 3rd, H. F. Becker.
Hens, 27.—1st, G. G. Henderson; 2nd, H. F. Becker; 3rd, Hoover & Nighswander; 4th, John Bradley; 5th, J. H. Tolson.
Cockerels, 34.—1st, Thompson & Connor; 2nd and 4th, G. G. Henderson; 3rd, H. F. Becker; 5th, Scott & Howard.
Pullets, 41.—1st, 2nd and 3rd, G. G. Henderson; 4th, Ferguson & Orr; 5th, H. F. Becker.

Buff Leghorns.

Cocks, 4.—1st and 2nd, J. A. Harron; 3rd, Jas. Dundas.
Hens, 5.—1st, Jas. Dundas; 2nd, J. A. Harron; 3rd, Jas. Dundas.
Cockerels, 4.—1st and 3rd, J. A. Harron; 2nd, Jas. Dundas.
Pullets, 9.—1st, 2nd and 3rd, J. A. Harron.

Spanish.

Cocks, 2.—1st, G. & J. Bogue; 2nd, T. J. Kiley.
Hens, 2.—1st, and 2nd, G. & J. Bogue.
Cockerels, 5.—1st, G. & J. Bogue; 2nd, G. & J. Bogue; 3rd, T. J. Kiley.
Pullets, 4.—1st, G. & J. Bogue; 2nd, G. & J. Bogue; 3rd, John Modlin.

Black Minorca.

Cocks, 5.—1st and 3rd, J. H. Minshall; 2nd, R. Durston.
Hens, 10.—1st, 2nd and 4th, J. H. Minshall; 3rd, L. V. Zavitz.
Cockerels, 14.—1st, 2nd and 4th, J. H. Minshall; 3rd, R. Durston.
Pullets, 15.—1st and 2nd, J. H. Minshall; 3rd, R. Durston; 4th, Wm. Ellis.

White Minorcas.

Cocks, 1.—1st, W. M. Osborne.
Hens, 1.—1st, W. M. Osborne.
Cockerels, 1.—1st, W. M. Osborne.
Pullets, 1.—1st, W. M. Osborne.

Andalusians.

Cocks, 6.—1st and 2nd, N. Cosh; 3rd, Scott & Howard.
Hens, 7.—1st, 2nd and 3rd, N. Cosh.
Cockerels, 7.—1st, 2nd and 3rd, N. Cosh.
Pullets, 6.—1st and 2nd, N. Cosh; 3rd, Scott & Howard.

Silver Gray Dorkings.

Cocks, 5.—1st and 3rd, John McKee; 2nd, Jas. M. McCormack.
Hens, 6.—1st, W. G. J. McFarlane; 2nd, A. Bogue; 3rd, Jas. M. McCormack.
Cockerels, 13.—1st, Telfer Bros.; 2nd, E. J. Wilson; 3rd, Jas. M. McCormack; 4th, R. Goldie.
Pullets, 16.—1st and 2nd, W. G. J. McFarlane; 3rd, John McKee; 4th, R. Goldie.

Colored Dorkings.

Cocks, 3.—1st, A. Bogue; 2nd, Jas. McCormack; 3rd, S. D. Furminger.
Hens, 3.—1st, A. Bogue; 2nd, Jas. M. McCormack; 3rd, S. D. Furminger.
Cockerels, 4.—1st and 2nd, Jas. M. McCormack; 3rd, A. Bogue.
Pullets, 4.—1st and 3rd, Jas. M. McCormack; 2nd, A. Bogue.

White Dorkings.

Cocks, 3.—1st, T. J. Kiley; 2nd and 3rd, A. Bogue.
Hens, 3.—1st, A. & T. Readwin & Steffler; 2nd and 3rd, A. Bogue.
Cockerels, 2.—1st and 2nd, A. Bogue.
Pullets, 3.—1st and 2nd, A. Bogue; 3rd, A. & T. Readwin & Steffler.

Buff Orpingtons.

Cocks, 12.—1st, P. E. Aird; 2nd, A. Boultbee; 3rd, C. J. Daniels; 4th, H. A Hoffman.
Hens, 17.—1st, A. Boultbee; 2nd, H. A. Hoffman; 3rd, A. Boultbee; 4th, P. E. Aird.
Cockerels, 36.—1st, Chas. Massie; 2nd, H. A. Hoffman; 3rd, Hugh McGregor; 4th, Thos. Rice; 5th, W. A. Caldwell.
Pullets, 57.—1st, H. E. Harmer; 2nd, H. E. Harmer; 3rd, T. F. McMullan; 4th, P. E. Aird; 5th, A. W. E. Hellyer.

A. O. C. Orpingtons.

Cocks, 2.—1st, H. A. Hoffman; 2nd, S. D. Furminger.
Hens, 2.—1st, C. J. Daniels; 2nd, S. D. Furminger.
Cockerels, 14.—1st, M. H. Stroh; 2nd, C. J. Daniels: 3rd and 4th, H. A. Hoffman.
Pullets, 17.—1st, H. A. Hoffman; 2nd, F. Chinneck; 3rd, M. H. Stroh 4th, F. Chinneck.

Houdans.

Cocks, 7.—1st, W. R. Knight: 2nd, D. C. Trew; 3rd, G. & J. Bogue.
Hens, 10.—1st, 2nd and 3rd, D. C. Trew.
Cockerels, 7.—1st and 3rd, G. & J. Bogue; 2nd, A. Bogue.
Pullets, 7.—1st, A. Bogue; 2nd, G. & J. Bogue; 3rd, H. S. Ruby & Son.

Creve Coeurs.

Cocks, 3.—1st, R. Oke; 2nd, A. Wellwood; 3rd, G. & J. Bogue.
Hens, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Cockerels, 4.—1st, R. Oke; 2nd and 3rd, A. Wellwood.
Pullets, 4.—1st, R. Oke; 2nd, G. & J. Bogue; 3rd, A. Wellwood.

La Fleche.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 2.—1st, G. & J. Bogue; 2nd, R. Oke.
Cockerels, 3.—1st, R. Oke; 2nd and 3rd, G. & J. Bogue.
Pullets, 3.—1st and 3rd, G. & J. Bogue; 2nd, R. Oke.

W. C. B. Polands.

Cocks, 4.—1st, Wm. McNeil; 2nd, G. J. Laurie; 3rd, A. Bogue.
Hens, 3.—1st, Wm. McNeil; 2nd, G. J. Laurie; 3rd, A. Bogue.
Cockerels, 5.—1st, A. Bogue; 2nd G. & J. Bogue; 3rd, W. H. Bush.
Pullets, 5.—1st, Wm. McNeil; 2nd, G. & J. Bogue; 3rd, W. H. Bush.

Golden Polands.

Cocks, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Hens, 3.—1st, A. Bogue; 2nd, Wm. McNeil; 3rd, G. & J. Bogue.
Cockerels, 3.—1st, Wm. McNeil; 2nd, A. Bogue; 3rd, G. & J. Bogue.
Pullets, 3.—1st, A. Bogue; 2nd, Wm. McNeil; 3rd, G. & J. Bogue.

Silver Polands.

Cocks, 2.—1st and 2nd, M. T. Burn.
Hens, 3.—1st and 2nd, M. T. Burn; 3rd, G. & J. Bogue.
Cockerels, 2.—1st, M. T. Burn; 2nd, G. & J. Bogue.
Pullets, 3.—1st, G. & J. Bogue; 2nd and 3rd, M. T. Burn.

White Polands.

Cocks, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Hens, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Cockerels, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Pullets, 2.—1st, Wm. McNeil.

Golden Bearded Polands.

Cocks, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Hens, 2.—1st, A. Bogue. 2nd, Wm. McNeil.
Cockerels, 3.—1st, Wm. McNeil; 2nd, A. Bogue.
Pullets, 3.—1st, A. Bogue; 2nd, Wm. McNeil.

Silver Bearded Polands.

Cocks, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Hens, 2.—1st, A. Bogue; 2nd, Wm. McNeil.
Cockerels, 3.—1st, Wm. McNeil; 2nd, A. Bogue.
Pullets, 3.—1st, Wm. McNeil; 2nd, A. Bogue.

WHITE BEARDED POLANDS.

Cocks, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Hens, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Cockerels, 2.—1st, Wm. McNeil; 2nd, A. Bogue.
Pullets, 2.—1st, Wm. McNeil; 2nd, A. Bogue.

BUFF LACED POLANDS.

Cocks, 2.—1st, Wm. McNeil; 2nd, G. & J. Bogue.
Hens, 2.—1st, Wm. McNeil; 2nd, G. & J. Bogue.
Cockerels, 2.—1st, G. & J. Bogue; 2nd, Wm. McNeil.
Pullets, 2.—1st, G. & J. Bogue; 2nd, Wm. McNeil.

GOLDEN SPANGLED HAMBURGS.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Cockerels, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

SILVER SPANGLED HAMBURGS.

Cocks, 3.—1st, Wm. Cadman; 2nd, Wm. McNeil; 3rd, R. Oke.
Hens, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Wm. Cadman.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 3.—1st, Wm. McNeil; 2nd, R. Oke.

GOLDEN PENCILLED HAMBURGS.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, A. Bogue.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

SILVER PENCILLED HAMBURGS.

Cocks, 3.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Cockerels, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, A. Bogue.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

BLACK HAMBURGS.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Cockerels,, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

RED CAPS.

Cocks, 2.—1st, G. & J. Bogue.
Hens, 2.—1st, G. & J. Bogue.
Cockerels, 2.—1st, C. J. Daniels; 2nd, G. & J. Bogue.
Pullets, 2.—1st, G. & J. Bogue.

SULTANS.

Cocks, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Hens, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Cockerels, 2.—1st, R. Oke; 2nd, G. & J. Bogue.
Pullets, 2.—1st, G. & J. Bogue; 2nd, R. Oke.

SILKIES.

Cocks, 3.—1st, Wm. McNeil; 2nd, Wm. McNeil; 3rd, H. B. Donovan.
Hens, 3.—1st, Wm. McNeil; 2nd, H. B. Donovan; 3rd, Wm. McNeil.
Cockerels, 3.—1st, W. J. Teale; 2nd, Wm. McNeil; 3rd, H. B. Donovan.
Pullets, 2.—1st, Wm. McNeil; 2nd, H. B. Donovan.

Any Other Variety.

Cocks, 3.—1st, M. T. Burn; 2nd, T. H. Scott.
Hens, 2.—1st, M. T. Burn; 2nd, T. H. Scott.
Cockerels, 5.—1st, T. H. Scott; 2nd, M. T. Burn; 3rd, T. H. Scott.
Pullets, 6.—1st, M. T. Burn; 2nd, T. H. Scott; 3rd, W. E. Parker.

Cross Breds.

Cockerels, 10.—1st and 2nd, W. J. Alexander; 3rd, F. W. Krouse.
Pullets, 9.—1st, W. H. Biggar; 2nd, R. H. Barber; 3rd, P. E. Aird.

Black-Tailed Japanese Bantams.

Cocks, 4.—1st, R. Oke; 2nd, W. H. Reid; 3rd, H. B. Donovan.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Cockerels, 3.—1st, R. Oke; 2nd, H. B. Donovan; 3rd, Wm. McNeil.
Pullets, 3.—1st, R. Oke; 2nd, H. B. Donovan; 3rd, Wm McNeil.

Black Red Bantams.

Cocks, 8.—1st, Wm. Hammall; 2nd, C. R. Crowe; 3rd, Wm. Hammall.
Hens, 9.—1st and 3rd, C. R. Crowe; 2nd, Wm. Hammall.
Cockerels, 13.—1st, 3rd and 4th, C. R. Crowe; 2nd, Wm. Hammall.
Pullets, 18.—1st and 2nd, Wm. Hammall; 3rd, C. R. Crowe; 4th, C. R. Crowe.

Brown Red Bantams.

Cocks, 5.—1st, Wm. Hammall; 2nd, Geo. J. White; 3rd, S. D. Furminger.
Hens, 8.—1st, S. D. Furminger; 2nd, Jas. McCormack; 3rd, Wm. Hammall.
Cockerels, 4.—1st, Rook Bros.; 2nd, Jas. Philpott & Son; 3rd, Geo. J. White.
Pullets, 6.—1st, Rook Bros.; 2nd, F. Cook & Son; 3rd, Jas. Philpott & Son.

Duckwing Bantams.

Cocks, 4.—1st and 3rd, Wm. Hammall; 2nd, Wm. Barber.
Hens, 6.—1st and 2nd, Wm. Hammall; 3rd, John Crowe.
Cockerels, 7.—1st, Wm. Hammall; 3rd, Spiers Bros.; 2nd, John Crowe.
Pullets, 15.—1st and 2nd, Wm. Hammall; 3rd, Wm. Barber; 4th, Rook Bros.

Polish Bantams.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Cockerels, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Pullets, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, H. B. Donovan.

Pile Bantams.

Cocks, 7.—1st, Henry & Corbet; 2nd, Wm. Barber; 3rd, Tyson & McMaster.
Hens, 10.—1st, 2nd and 3rd, Tyson & McMaster.
Cockerels, 11.—1st and 2nd, Wm. Hammall; 3rd, W. H. Crowe.
Pullets, 8.—Henry & Corbet; 2nd, Wm. Hammall; 3rd, Tyson & McMaster.

White Game Bantams.

Cocks, 4.—1st and 2nd, H. B. Donovan; 3rd and 4th, Wm. Hammall.
Hens, 4.—1st and 2nd, H. B. Donovan; 3rd and 4th, Wm. Hammall.
Cockerels, 4.—1st, 2nd and 3rd, H. B. Donovan; 4th, Jas. Philpott & Sons.
Pullets, 4.—1st, 2nd and 3rd, H. B. Donovan; 4th, Wm. Hammall.

A. O. C. Game Bantams.

Cocks, 3.—1st, S. D. Furminger; 2nd, H. B. Donovan; 3rd, Wm. Hammall.
Hens, 6.—1st, S. D. Furminger; 2nd, H. B. Donovan; 3rd, Rook Bros.
Cockerels, 4.—1st and 2nd, S. D. Furminger; 3rd, H. B. Donovan.
Pullets, 6.—1st, S. D. Furminger; 2nd, Jas. M. McCormack; 3rd, Tyson & McMaster.

Golden Sebright Bantams.

Cocks, 4.—1st, R. Oke; 2nd, C. C. Hinds; 3rd, Slessor & McCracken.
Hens, 5.—1st, Wm. McNeil; 2nd, L. A. Brill; 3rd, R. Oke.
Cockerels, 7.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Slessor & McCracken.
Pullets, 6.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, C. C. Hinds.

Silver Sebright Bantams.

Cocks, 7.—1st, Spiers Bros.; 2nd, Wm. McNeil; 3rd, Slessor & McCracken.
Hens, 4.—1st, Spiers Bros.; 2nd, R. Oke; 3rd, Wm. McNeil.
Cockerels, 6.—1st, Wm. McNeil; 2nd, Spiers Bros.; 3rd, R. Oke.
Pullets, 9.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, Slessor & McCracken.

Black Rose Comb Bantams.

Cocks, 4.—1st, R. Oke; 2nd, H. B. Donovan; 3rd, Slessor & McCracken.
Hens, 5.—1st, H. B. Donovan; 2nd, R. Oke; 3rd, Slessor & McCracken.
Cockerels, 5.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.
Pullets, 5.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, H. B. Donovan.

White Rose Comb Bantams.

Cocks, 2.—1st, R. Oke; 2nd, H. B. Donovan.
Hens, 3.—1st and 2nd, H. B. Donovan; 3rd, R. Oke.
Cockerels, 2.—1st, H. B. Donovan; 2nd, R. Oke.
Pullets, 2.—1st, H. B. Donovan; 2nd, R. Oke.

White Cochin Bantams.

Cocks, 6.—1st and 2nd, Wm. McNeil; 3rd, R. Rogers; 4th, Geo. Colwell.
Hens, 5.—1st and 2nd, Wm. McNeil; 3rd, C. A. R. Tilt; 4th, R. Rogers.
Cockerels, 8.—1st and 3rd, Wm. McNeil; 2nd, R. Rogers; 4th, C. A. R. Tilt.
Pullets, 8.—1st and 2nd, R. Rogers; 3rd and 4th, Wm. McNeil.

Buff Cochin Bantams.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, R. Rogers.
Cockerels, 6.—1st, Wm. McNeil; 2nd, C. A. R. Tilt; 3rd, R. Rogers; 4th, R. Oke.
Pullets, 5.—1st, R. Oke; 2nd, R. Rogers; 3rd, Wm. McNeil.

Black Cochin Bantams.

Cocks, 2.—1st, T. J. Kiley; 2nd, T. J. Kiley.
Hens, 3.—1st and 2nd, T. J. Kiley; 3rd, Slessor & McCracken.
Cockerels, 5.—1st, 2nd and 4th, T. J. Kiley; 3rd, H. B. Donovan.
Pullets, 7.—1st, T. J. Kiley; 2nd, T. J. Kiley, 3rd, Slessor & McCracken.

Partridge Cochin Bantams.

Cocks, 5.—1st, A. W. Bell; 2nd, Wm. McNeil; 3rd, H. B. Donovan.
Hens, 5.—1st and 3rd, A. W. Bell; 2nd, Wm. McNeil.
Cockerels, 6.—1st, Wm. McNeil; 2nd, Jas. Doughty; 3rd, H. B. Donovan.
Pullets, 7.—1st and 3rd, Wm. McNeil; 2nd, T. J. Kiley.

White Booted Bantams.

Cocks, 3.—1st and 3rd, T. J. Kiley; 2nd, R. Oke.
Hens, 4.—1st, T. J. Kiley; 2nd, R. Oke; 3rd, W. J. Teale.
Cockerels, 3.—1st, R. Oke; 2nd and 3rd, T. J. Kiley.
Pullets, 4.—1st and 3rd, T. J. Kiley; 2nd, R. Oke.

White-Tailed Japanese Bantams.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Cockerels, 4.—1st, R. Oke; 2nd, H. Rawsthorne; 3rd, Wm. McNeil.
Pullets, 4.—1st, R. Oke; 2nd, H. B. Donovan; 3rd, Wm. McNeil.

A. O. C. Ornamental Bantams.

Cocks, 3.—1st, R. Oke; 2nd and 3rd, H. B. Donovan.
Hens, 3.—1st and 2nd, H. B. Donovan; 3rd, R. Oke.
Cockerels, 1.—1st, R. Oke.
Pullets, 2.—1st, R. Oke; 2nd, H. B. Donovan.

Bronze Turkeys, 2 Years.

Cocks, 5.—1st, W. J. Bell; 2nd and 3rd, W. H. Beattie; 4th, J. W. Wood.
Hens, 6.—1st, W. J. Bell; 2nd, F. D. Bainard; 3rd, W. E. Wright; 4th, J. W. Wood; 5th, Jas. Ford & Son.

Bronze Turkeys. (Under 2 years).

Cocks, 9.—1st, Jas. Ford & Son; 2nd and 3rd, W. J. Bell; 4th, Bremar Stock Farm; 5th, A. McDougall & Son.
Hens, 11.—1st, A. McDougall; 2nd, Bremar Stock Farm; 3rd and 4th, W. J. Bell; 5th, Baker Bros.
Cockerels, 12.—1st, W. J. Bell; 2nd and 5th, A. McDougall & Son; 3rd, W. H. Beattie; 4th, J. W. Wood.
Pullets, 12.—1st, W. J. Bell; 2nd, Jas. Ford & Son; 3rd, W. E. Wright; 4th and 5th, A. McDougall & Son.

White Turkeys.

Cocks, 5.—1st and 3rd, W. H. Beattie; 2nd and 5th, Baker Bros.; 4th, W. J. Alexander.
Hens, 5.—1st and 5th, Baker Bros.; 2nd and 3rd, W. H. Beattie; 4th, W. J. Alexander.
Cockerels, 5.—1st and 3rd, W. H. Beattie; 2nd, W. J. Bell; 4th, W. J. Alexander; 5th, Telfer Bros.
Pullets, 6.—1st and 2nd, W. H. Beattie; 3rd, W. J. Alexander; 3rd and 5th, Telfer Bros.

A. O. V. Turkeys.

Cocks, 3.—1st, W. H. Beattie; 2nd and 3rd, A. G. H. Luxton.
Hens, 3.—1st, W. H. Beattie; 2nd, A. G. H. Luxton.
Cockerels, 3.—1st and 2nd, A. G. H. Luxton; 3rd, W. H. Beattie.
Pullets, 3.—1st and 3rd, A. G. H. Luxton; 2nd, W. H. Beattie.

Toulouse Geese.

Cocks, 6.—1st, A. Bogue; 2nd, Scanlon Bros.; 3rd, Geo. Colwell.
Hens, 6.—1st, A. Bogue; 2nd, Scanlon Bros.; 3rd, Geo. Colwell.
Cockerels, 6.—1st and 2nd, Geo. Colwell; 3rd, Scanlon Bros.
Pullets, 6.—1st and 2nd, Geo. Colwell; 3rd, Baker Bros.

Bremen or Embden Geese.

Cocks, 6.—1st, Geo. Colwell; 2nd, C. A. R. Tilt; 3rd, Scanlon Bros.
Hens, 6.—1st, Geo. Colwell; 2nd, Scanlon Bros.; 3rd, M. T. Burn.
Cockerels, 7.—1st, A. McDougall & Son; 2nd, Geo. Colwell; 3rd, T. M. Shea.
Pullets, 6.—1st, T. M. Shea; 2nd, A. McDougall; 3rd, Geo. Colwell.

Chinese Geese.

Cocks, 3.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, Telfer Bros.
Hens, 3.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, Telfer Bros.
Cockerels, 4.—1st, Geo. Colwell; 2nd, M. T. Burn; 3rd, C. A. R. Tilt.
Pullets, 4.—1st, Geo. Colwell; 2nd, M. T. Burn; 3rd, C. A. R. Tilt.

A. O. V. Geese.

Cocks, 4.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, T. M. Shea.
Hens, 4.—1st, M. T. Burn; 2nd, Geo. Colwell; 3rd, Telfer Bros.
Cockerels, 6.—1st, M. T. Burn; 2nd, T. M. Shea.
Pullets, 6.—1st and 3rd, Geo. Colwell; 2nd, M. T. Burn.

Aylesbury Ducks.

Cocks, 3.—1st and 2nd, H. H. Wallace; 3rd, Geo. Colwell.
Hens, 3.—1st and 2nd, H. H. Wallace; 3rd, Geo. Colwell.
Cockerels, 3.—1st, H. H. Wallace; 2nd and 3rd, Geo. Colwell.
Pullets, 4.—1st and 2nd, H. H. Wallace; 3rd, Geo. Colwell.

Rouen Ducks.

Cocks, 7.—1st, Geo. Colwell; 2nd, G. & J. Bogue; 3rd, Baker Bros.
Hens, 8.—1st, Geo. Colwell; 2nd, G. & J. Bogue; 3rd, Baker Bros.
Cockerels, 8.—1st, W. R. Knight; 2nd, Geo. Colwell; 3rd, J. M. McCormack.
Pullets, 8.—1st, Jas. M. McCormack; 2nd, Bremar Stock Farm; 3rd, Geo. Colwell.

Pekin Ducks.

Cocks, 9.—1st, A. Bogue; 2nd, C. A. R. Tilt; 3rd, Baker Bros.
Hens, 8.—1st, A. Bogue; 2nd, C. A. R. Tilt; 3rd, W. R. Curtis & Co.
Cockerels, 7.—1st, C. A. R. Tilt; 2nd, G. J. Lawrie; 3rd, Geo. Colwell.
Pullets, 6.—1st, Geo. Colwell; 2nd, G. J. Lawrie; 3rd, W. R. Curtis & Co.

Indian Runner Ducks.

Cocks, 5.—1st, John Colson; 2nd, S. D. Furminger; 3rd, Geo. Colwell.
Hens, 3.—1st, John Colson; 2nd, S. D. Furminger; 3rd, M. T. Burn.
Cockerels, 4.—1st and 3rd, John Colson; 2nd, S. D. Furminger.
Pullets, 3.—1st, Geo. Colwell; 2nd and 3rd, S. D. Furminger.

Cayuga Ducks.

Cocks, 4.—1st, I. T. Knight; 2nd, A. & T. Readwin & Steffler; 3rd, G. & J. Bogue.
Hens, 4.—1st and 2nd, I. T. Knight; 3rd, G. & J. Bogue.
Cockerels, 7.—1st, G. & J. Bogue; 2nd, I. T. Knight; 3rd, A. & T. Readwin & Steffler.
Pullets.—1st and 3rd, I. T. Knight; 2nd, G. & J. Bogue.

Colored Muscovy Ducks.

Cocks, 6.—1st, M. T. Burn; 2nd, I. T. Knight; 3rd, Baker Bros.
Hens, 7.—1st, I. T. Knight; 2nd, M. T. Burn; 3rd, Baker Bros.
Cockerels, 5.—1st and 2nd, I. T. Knight; 3rd, Baker Bros.
Pullets, 5.—1st, Baker Bros.; 2nd, I. T. Knight; 3rd, M. T. Burn.

A. O. V. Ducks.

Cocks, 3.—1st, Telfer Bros.; 2nd, M. T. Burn; 3rd, C. G. Roos.
Hens, 3.—1st, Telfer Bros.; 2nd, M. T. Burn; 3rd, C. G. Roos.
Cockerels, 3.—1st, M. T. Burn; 2nd, Telfer Bros.; 3rd, C. G. Roos.
Pullets, 3.—1st, M. T. Burn; 2nd, Telfer Bros.; 3rd, C. G. Roos.

English Pheasants.

Pair.—1st, Geo. Karn; 2nd, R. Goldie.

Golden Pheasants.

Pair.—1st, Geo. Karn.

Silver Pheasants.

Pair.—1st and 2nd, R. Goldie.

A. O. V. Pheasants.

Pair.—1st, R. Goldie.

PIGEONS.

Black Carrier.

Cock.—1st and 2nd, George J. White. *Hen.*—1st and 2nd, George J. White, Hamilton.

Dun Carrier.

Cock.—1st and 2nd, George J. White. *Hen.*—1st and 2nd, Geo. J. White.

A. O. S. C. Carrier.

Cock.—1st and 2nd, George J. White. *Hen.*—1st, George J. White; 2nd, W. H. Reid.

WHITE POUTER.

Cock.—1st and 2nd, J. H. Magill, Port Hope.
Hen.—1st, L. Ridler, Guelph; 2nd, J. H. Magill.

BLUE PIED POUTER.

Cock.—1st, R. W. Scott, Toronto; 2nd, W. J. McCormack. *Hen.*—1st, R. M. Scott.

BLACK PIED POUTER.

Cock.—1st, R. W. Scott, Toronto; 2nd, J. H. Magill, Port Hope.
Hen.—1st, R. W. Scott; 2nd, J. H. Magill.

R. OR Y. POUTER.

Cock.—1st, Chas. Currier, Toronto; 2nd, Chas. Massie, Port Hope.
Hen.—1st, Chas. Currier, Toronto; 2nd, Chas. Massie, Port Hope.

PIGMY POUTER.

Cock.—1st and 2nd, J. T. Isbell, Toronto. *Hen.*—1st and 2nd, J. T. Isbell, Toronto.

MUFFED TUMBLER.

Cock.—1st, Geo. J. Asman, Detroit, Mich.; 2nd, H. E. Corbet, Guelph.
Hen.—1st, V. Barber, Toronto; 2nd, Geo. J. Asman.

L. F., C. L. TUMBLER.

Cock.—1st and 2nd, George J. Asman. *Hen.*—1st and 2nd, George J. Asman.

S. F. ALMOND TUMBLER.

Cock.—2nd, L. Ridler, Guelph. *Hen.*—1st, W. H. Reid, Kingston.

S. F. TUMBLER, A. O. V.

Cock.—1st, F. Bell, Toronto; 2nd, W. H. Reid. *Hen.*—1st, W. H. Reid, Kingston.

RED BARB.

Cock.—1st, Geo. J. White, Hamilton. *Hen.*—1st, Geo. J. White.

BLACK BARB.

Cock.—1st, G. J. White; 2nd, H. E. Corbet.
Hen.—1st, G. J. White; 2nd, H. E. Corbet.

A. O. S. C. BARB.

Cock.—1st, F. Bell, Toronto; 2nd, W. J. McCormack, Toronto.
Hen.—1st, H. E. Corbet, Guelph; 2nd, W. J. McCormack.

WHITE TRUMPETER.

Cock.—1st and 2nd, Chas. Massie. *Hen.*—1st, Chas. Massie; 2nd, J. H. Karn, Guelph.

A. O. S. C. TRUMPETER.

Cock.—1st, C. Massie; 2nd, Burrmount Pigeon Lofts.
Hen.—1st, W. J. McCormack; 2nd, C. Massie.

R. OR Y. JACOBIN.

Cock.—1st, C. Massie; 2nd, R. K. Barker. *Hen.*—1st, C. Massie; 2nd, R. K. Barker.

WHITE JACOBIN.

Cock.—1st, A. W. Barton; 2nd, R. K. Barker.
Hen.—1st, R. K. Barker; 2nd, A. W. Barton.

A. O. S. C. Jacobin.

Cock.—1st, A. W. Barton; 2nd, Jno. M. Benson, Midland.
Hen.—1st, A. W. Barton; 2nd, John M. Benson.

Runt.

Cock.—1st, M. T. Burn, Tillsonburg. *Hen.*—1st, M. T. Burn.

Oriental Frill.

Cock.—1st and 2nd, F. Bell, Toronto. *Hen.*—1st and 2nd, F. Bell.

R. C. Antwerp.

Cock.—1st, W. H. Reid, Kingston. *Hen.*—1st, W. H. Reid.

Silver Dun Antwerp.

Cock.—1st and 2nd, W. H. Reid, Kingston. *Hen.*—1st and 2nd, W. H. Reid.

White Fantail.

Cock.—1st, W. J. McCormack; 2nd, W. J. McCormack.
Hen.—1st, J. H. Karn, Guelph; 2nd, W. J. McCormack.

Blue Fantail.

Cock.—1st and 2nd, W. J. McCormack.
Hen.—1st, W. J. Thompson, Guelph; 2nd, W. J. McCormack.

A. O. S. C. Fantail.

Cock.—1st and 2nd, W. J. McCormack. *Hen.*—1st and 2nd, W. J. McCormack.

R. or Y. Magpie.

Cock.—1st and 2nd, Ottawa Pigeon Lofts.
Hen.—1st, Ottawa Pigeon Lofts; 2nd, L. Ridler, Guelph.

A. O. C. Magpie.

Cock.—1st, Ottawa Pigeon Lofts; 2nd, L. Ridler.
Hen.—1st and 2nd, Ottawa Pigeon Lofts.

Show Homer.

Cock.—1st and 2nd, Alf. Knight, Davisville.
Hen.—1st, Alf. Knight; 2nd, Burrmount Pigeon Lofts.

Black Swallow.

Cock.—1st, Ottawa Pigeon Lofts; 2nd, W. H. Reid, Kingston.
Hen.—1st and 2nd, Ottawa Pigeon Lofts.

A. O. Sol. C. Swallow.

Cock.—1st, Ottawa Pigeon Lofts; 2nd, W. H. Reid, Kingston.
Hen.—1st, Ottawa Pigeon Lofts; 2nd, A. W. Barton, Toronto.

A. O. C. Swallow.

Cock.—1st and 2nd, Ottawa Pigeon Lofts.
Hen.—1st, Ottawa Pigeon Lofts; 2nd, A. W. Barton, Toronto.

Dragoon.

Cock.—1st and 2nd, Geo. J. White. *Hen.*—1st and 2nd, George J. White.

Archangel.

Cock.—1st, L. Ridler, Guelph; 2nd, W. H. Reid. *Hen.*—1st and 2nd, L. Ridler.

NUN.

Cock.—1st and 2nd, C. Massie, Port Hope. *Hen.*—1st and 2nd, W. H. Reid, Kingston.

A. C. AFRICAN OWL.

Cock.—1st, W. Plant, Ottawa; 2nd, W. H. Reid. *Hen.*—1ts and 2nd, W. Plant.

ENGLISH OWL, BLUE OR SILVER.

Cock.—1st, F. Bell; 2nd, C. H. Currier. *Hen.*—1st, C. H. Currier; 2nd, F. Bell.

A. O. C. ENGLISH OWL.

Cock.—1st, C. H. Currier; 2nd, F. Bell. *Hen.*—1st, F. Bell; 2nd, C. H. Currier.

A. O. V. OWL.

Cock.—1st, H. E. Corbet, Guelph.
Hens.—1st, F. Bell, Toronto; 2nd, M. T. Burn, Tillsonburg.

BLACK TURBIT.

Cock.—1st and 2nd, Henry & Corbett, Guelph. *Hen.*—1st and 2nd, Henry & Corbett.

RABBIT, LOP EARED, SOL. COLOR.

Male.—1st and 2nd, W. Fox, Toronto. *Female.*—1st and 2nd, W. Fox, Toronto.

RABBIT, LOP-EARED A. O. V.

Male.—1st and 2nd, W. Fox. *Female.*—1st and 2nd, W. Fox, Toronto.

DUTCH RABBIT.

Male.—1st and 2nd, W. Fox, Toronto. *Female.*—1st and 2nd, W. Fox, Toronto.

A. O. V. RABBIT.

Male.—1st and 2nd, W. Fox. *Female.*—1st and 2nd, W. Fox.

BELGIAN HARE.

Male.—1st and 2nd, W. Fox. *Female.*—1st and 2nd, W. Fox.

CANARY, SCOTCH FANCY.

Cock.—1st and 2nd, F. W. Hodgkin, Guelph. *Hen.*—1st and 2nd, F. W. Hodgkin.

DRESSED POULTRY.

Pair Brahmas, 1904.—1st and 2nd, A. A. Armstrong; 3rd, L. C. Sage.
Pair Cochins, 1904.—1st and 2nd, A. A. Armstrong; 3rd, H. Wyatt.
Pair Langshans, 1904.—1st, 2nd and 3rd, J. E. Mounce.
Pair Plymouth Rock Cockerels, 1904.—1st, J. E. Mounce; 2nd, Scanlon Bros.; 3rd, A. A. Armstrong.
Pair Plymouth Rock Pullets.—1st, 2nd and 3rd, A. A. Armstrong.
Pair Wyandotte Cockerels.—1st, A. E. & W. Howard; 2nd, A. A. Armstrong; 3rd, J. E. Mounce.
Pair Wyandotte Pullets.—1st and 2nd, A. A. Armstrong.
Pair Minorcas or Andalusians.—1st and 2nd, A. A. Armstrong; 3rd, J. H. Minshall.
Pair Leghorns, 1904.—1st and 2nd, A. A. Armstrong; 3rd, Scanlon Bros.
Pair Dorkings, 1904.—1st, 2nd and 3rd, A. A. Armstrong.
Pair Game, 1904.—1st, R. H. Barber; 2nd, Telfer Bros.
Pair Javas, 1904.—1st, A. A. Armstrong.
Pair Orpingtons, 1904.—1st and 2nd, A. A. Armstrong; 3rd, J. E. Mounce.
Best Pair Fowl.—1st, J. E. Mounce.

Turkeys.

Turkey, any age, Male.—1st and 3rd, H. J. Woodrow & Sons; 2nd, Scanlon Bros.
Turkey, any age, Female.—1st, Scanlon Bros.; 2nd and 3rd, H. J. Woodrow.
Pair Turkeys of 1904, Male.—1st and 2nd, H. J. Woodrow & Son; 3rd, Scanlon Bros.
Pair Turkeys of 1904, Female.—1st, Scanlon Bros.; 2nd and 3rd, H. J. Woodrow.

Geese.

Pair Geese, 1904, White.—1st and 2nd, Scanlon Bros.; 3rd, Jas. McCormack.
Pair Geese, 1904, Colored.—1st and 2nd, Scanlon Bros.; 3rd, H. J. Woodrow.
Best Pair.—Scanlon Bros.

Ducks.

Pair Ducks, 1904, White.—1st and 3rd, Geo. Fyfe; 2nd, I. T. Knight.
Fair Ducks, 1904, Colored.—1st, 2nd and 3rd, I. T. Knight.
Best Pair.—I. T. Knight.

Collection of Fowls.

Six Asiatics.—1st, J. C. Mounce; 2nd and 3rd, A. A. Armstrong.
Six Plymouth Rocks or Wyandottes.—1st, A. A. Armstrong; 2nd, J. C. Mounce; 3rd, Scanlon Bros.
Six Minorcas, Andalusians or Javas.—1st and 2nd, A. A. Armstrong; 3rd, J. H. Minshall.
Six Dorkings or French.—1st, A. A. Armstrong; 2nd, A. A. Armstrong; 3rd, J. C. Mounce.
Six Leghorns and Hamburgs.—1st, A. A. Armstrong; 2nd and 3rd, Scanlon Bros.
Six Turkeys, 1904.—1st, Scanlon Bros.; 2nd and 3rd, H. J. Woodrow & Sons.
Six Geese, 1904.—1st, Scanlon Bros.; 2nd, H. J. Woodrow & Sons.
Six Ducks.—1st and 3rd, I. T. Knight; 2nd, Geo. Fyfe.

Eggs.

One Dozen Eggs, heaviest and best, White.—1st, Geo. Brierly; 2nd, Jos. Foster; 3rd, J. H. Minshall.
One Dozen Eggs, heaviest and best, Brown.—1st, Jos. Foster; 2nd, H. Wyatt.

Pen of Utility Birds.

Breeding Pen, Four Utility Birds.—1st, H. A. Hoffman; 2nd, J. E. Mounce; 3rd, Jos. Foster.

Killing Chickens, Non-Professional.

1st, C. Sinfield; 2nd, T. B. Chrisholm; 3rd, Can. Poultry Produce Co.

Professional.

1st, I. Blunt; 2nd, Can. Poultry Produce Co.

LIST OF POULTRY SPECIAL WINNERS.

Light Brahmas.—Best cock, J. J. Pickard; best 3 cocks, 3 hens, 3 cockerels and 3 pullets, Geo. A. Tossy.
Dark Brahmas.—Best collection, L. C. Sage.
Buff Cochins.—Best cock, H. Wyatt; best cockerel, H. Wyatt; best collection H. Wyatt
Partridge Cochins.—Best collection, R. Oke.
Black Cochins.—Best hen, W. G. Murray.
White Cochins.—Best cockerel or cock, H. Wyatt.
Black Langshans.—Best collection, R. McCurdy.
White Langshans.—Best collection, W. J. Teal.
Barred Plymouth Rocks.—Best hen, J. R. Boyce; best cockerel, Wm. McLeod; best pullet, I. K. Millard; Bronze Medal for best cock, J. R. Boyce; Barred Rock Cup, J. R. Boyce.
Barred Plymouth Rocks (Novice).—Best cockerel and pullet, Chas. Hockin.

White Plymouth Rocks.—Best 2 cocks, A. G. Brown; best cock, H. H. Wallace; best cockerel, Daly & Dill; Silver Medal for best cockerel, Daly & Dill; best collection, H. H. Wallace; largest and best exhibit, H. A. Hagen; Silver Medal best bird, H. H. Wallace; Wanless Silver Cup, best cock, hen, cockerel and pullet, H. H. Wallace; best bird, H. H. Wallace; Medal for best exhibit, H. A. Hagen.

Buff Plymouth Rocks.—Best collection, G. A. Ionson; Subscription to Canadian Poultry Review, best colored female, G. A. Ionson.

Golden Laced Wyandottes.—Best striped cock, Daniel & Goften; best pullet, Daniel & Goften; best collection, Daniel & Goften.

Silver Laced Wyandottes.—Best cock, Jas. Arthur; best hen, Jas. Arthur; best cockerel, Jas. Arthur; best pullet, F. W. Krouse; best cockerel and pullet, Jas. Arthur; best collection, Jas. Arthur.

Black Wyandottes.—Best cock, R. Dinner; best 2 cockerels, J. P. McDonnell; best cock, hen, cockerel and pullet, G. J. Bogue.

Buff Wyandottes.—Best cock, A. W. Graham; most evenly surface colored cock, S. T. Bartlett; best hen, S. T. Bartlett; hen showing the least foreign color throughout plumage, S. T. Bartlett; best pullet, A. W. Graham; pullet showing least foreign color throughout plumage, S. T. Bartlett; best cock, hen, cockerel and pullet, S. T. Bartlett; best collection open to exhibitors who have not taken a 1st prize at any exhibition of this Association, T. F. McCabe.

White Wyandottes.—Best cock, J. A. Carroll; best hen, J. S. Martin; best cockerel, J. S. Martin; best 3 cockerels, J. S. Martin; best cockerel and pullet, L. H. Baldwin; best collection, S. Martin.

Partridge Wyandottes.—Best 2 cocks, T. Scott; best 2 hens, T. Scott; best 2 cockerels, T. Scott.

Dominiques.—Goods for best collection, G. & J. Boyce.

Black Javas.—Best cock, R. Oke; best hen, C. J. Daniels; best cockerel, R. Oke; best pullet, G. & J. Bogue; best cock, hen, cockerel and pullet, R. Oke.

Mottled Javas.—Best cock, hen, cockerel and pullet, G. & J. Bogue.

Black Red Game.—Best cock, W. S. Butler; best hen, W. S. Butler; best 2 cockerels, W. S. Butler; 2 best colored pullets, W. S. Butler; best collection, W. S. Butler.

Brown Red Game.—Best collection, Tyson & McMaster.

Duckwing Game.—Best cock, Wm. Barber; best collection, Wm. Barber.

Pyle Game.—Best cock, Wm. Barber; best hen, Wm. Barber; best 2 cockerels, Thos. Sherlock; best pullet, Thos. Sherlock; best cockerel, Thos. Sherlock.

Indian Game.—Best cock, J. W. Nixon; Silver Medal for best hen, J. W. Nixon; best cockerel, J. W. Nixon; best pullet, J. W. Nixon.

Black Sumatra Game.—Best game cock, W. S. Butler.

S. C. White Leghorns.—Best Colored cock, Dr. R. C. Coates; best hen, Thos. Rice; best cockerel, Thos. Rice; best 2 cocks and 2 cockerels, Dr. R. C. Coates; best pullet, T. Rice; best collection, Thos. Rice.

White Leghorns.—Best pullet, Thos. Rice.

R. C. White Leghorns.—Best cock, W. G. Murray; best hen, W. G. Murray; best cockerel, W. J. Bell; best pullet, W. J. Bell; best headed cockerel, W. J. Bell.

R. C. Brown Leghorns.—Best cock, Wilson & Son; best hen, Wilson & Son; best cockerel, Hoover & Nighswander; best pair, Wilson & Son.

Single Comb Brown Leghorns.—Heaviest hen, John Bradley; best 2 hens, G. G. Henderson.

Single Comb Leghorns.—Best headed male, T. Rice; best headed female, T. Rice.

Black Leghorns.—Best cock, F. W. Hodgkin; best hen, W. G. Murray; best cockerel, W. G. Murray; best pullet, W. G. Murray.

S. C. Brown Leghorns.—Best cock, G. G. Henderson; heaviest cock, G. G. Henderson; heaviest hen, Scott & Howard; goods for best hen, G. G. Henderson; Silver Medal for 2 hens showing least shafting, G. G. Henderson; Silver Medal for best 5 hens, H. F. Becker; best cockerel, G. G. Henderson; best colored cockerel, and pullet, G. G. Henderson; best pullet, G. G. Henderson; best bird, any age, G. G. Henderson; best 3 birds, G. G. Henderson.

S. C. or R. C. Br. Leghorns.—Best 3 cockerels and 3 pullets, G. G. Henderson.

Buff Leghorns.—Best hen, Jas. Dundas; best cockerel, J. A. Harron; best 2 cockerels, J. A. Harron; best 2 pullets, J. A. Harron; best surface colored male, J. A. Harrow; best surface colored female, Jas. Dundas; Cup for best cock, hen, cockerel and pullet, and breeding pen, J. A. Harron.

S. C. Leghorns.—Best headed female, Thos. Rice; best headed male, Thos. Rice.

Spanish.—Best cock, G. & J. Bogue; best collection, G. & J. Bogue.

Black Minorcas.—Best hen, J. H. Minshall; best cockerel, J. H. Minshall; best pullet, J. H. Minshall.

S. C. Black Minorcas.—Best collection, J. H. Minshall.

R. C. Black Minorcas—Best cock, W. Worth; best hen, W. Worth; best cockerel, W. Worth; best pullet, W. Worth; best cock and cockerel, W. Worth; best old and young pair, W. Worth.
White Minorcas.—Best collection, W. Worth.
Andalusians.—Best cock, hen, cockerel and pullet, N. Cosh; best collection, Scott & Howard.
Silver Gray Dorkings.—Best cock, J. M. McCormack; best hen, W. G. J. McFarlane; best cockerel, Telfer Bros.; best pullet, W. G. J. McFarlane.
Colored Dorkings.—Best collection, J. M. McCormack.
White Dorkings.—Best collection, A. Bogue.
Buff Orpingtons.—Best cock, C. J. Daniels; best hen, H. A. Hoffman; best 2 cocks, and 2 hens, H. A. Hoffman; best cockerel, Chas. Massie; best 4 cockerels and 4 pullets, H. A. Hoffman; best bird, Chas. Massie; best bird, owned by exhibitor who has never won a first prize at an exhibition of this Association, W. A. Colwell; Colonial Cup, best cockerel, Chas. Massie; Silver Challenge Cup, H. A. Hoffman; best cock, 1st, P. E. Aird; 2nd, A. Boultbee; best hen A. Boultbee; 2nd, H. A. Hoffman; best cockerel, 1st, H. A. Hoffman; 2nd, H. A. Hoffman; best pullet, P. E. Aird; 2nd, A. W. E. Hellyer; best bird, H. A. Hoffman.
Black Orpingtons.—Best cock, H. A. Hoffman; best cockerel, M. H. Stroh; best pullet, H. A. Hoffman; best 4 cockerels and 4 pullets, H. A. Hoffman.
White Orpingtons.—Best 2 cockerels and 2 pullets, H. A. Hoffman.
Orpingtons.—Best Orpington, any color, Chas. Massie.
Houdans.—Best cock, D. C. Trew; best collection, G. & J. Bogue.
Creve Couers.—Best cock, R. Oke.
LaFleche.—Best cock, R. Oke.
French.—Best collection, G. & J. Bogue.
W. C. B. Polands.—Best cock and hen, Wm. McNeil.
Golden Polands.—Best cock and hen, A. Bogue.
Silver Polands.—Best collection, M. T. Burn.
White Polands.—Best cock and hen, Wm. McNeil.
G. Bearded Polands.—Best cock and hen, A. Bogue.
S. Bearded Polands.—Best cock and hen, Wm. McNeil.
W. Bearded Polands.—Best cock and hen, W. McNeil.
Buff Laced Polands.—Best cock and hen, W. McNeil.
Golden Spangled Hamburgs.—Best cock, hen, cockerel and pullet, W. McNeil.
Silver Spangled Hamburgs.—Best cock, hen, cockerel and pullet, W. McNeil.
Golden Pencilled Hamburgs.—Best cock, hen, cockerel and pullet, W. McNeil.
Silver Pencilled Hamburgs.—Best cock, hen, cockerel and pullet, R. Oke.
Black Hamburgs.—Best collection, R. Oke.
Red Caps.—Silver Cup for best collection, G. & J. Bogue.
Sultans.—Best cock, hen, cockerel and pullet, R. Oke.
Silkies.—Best cockerel, W. McNeil; best pullet, W. McNeil; best cock, hen, cockerel and pullet, W. McNeil.
Columbian Wyandottes.—Best 2 cockerels and 2 pullets, T. H. Scott; best old pair, T. H. Scott.
Brown Red Game Bantams.—Best cock, Wm. Hammall; best hen, S. D. Furminger; best cockerel, Jas. Philpot & Son.
Black Red Game Bantams.—Best cock, Wm. Hammall; best hen, C. R. Crowe; best cockerel, C. R. Crowe; best pullet, Wm. Hammall.
Duckwing Game Bantams.—Best cock, Wm. Hammall; best hen, Wm. Hammall; best cockerel, Wm. Hammall; best 2 pullets, Wm. Hammall; best pullet, Wm. Hammall.
Pyle Game Bantams.—Best cock, Wm. Barber; best hen, Tyson & McMaster; best 3 hens, Wm. Hammall; best 2 Cockerels, Tyson & McMaster; best 3 pullets, Tyson & McMaster.
White Game Bantams.—Best collection, H. B. Donovan.
Birchen Game Bantams.—Best cockerel, S. D. Furminger; best pullet, S. D. Furminger.
Game Bantams.—Hammall Silver Cup, best cockerel or pullet, any color, C. R. Crowe; Toronto Medal, best male or female, any color, C. R. Crowe.
Golden Sebright Bantams.—Best cock, R. Oke; best hen, Wm. McNeil; best cockerel, R. Oke; best pullet, Wm. McNeil; best cockerel and pullet, R. Oke.
Silver Sebright Bantams.—Best cock, Spiers Bros.; best hen, Spiers Bros.; best cockerel, Wm. McNeil; best pullet, W. McNeil; best 2 pullets, Slessor & McCracken.
Black Rose Comb Bantams.—Best cock, hen, cockerel and pullet, R. Oke.
White Rose Comb Bantams.—Best cock, hen, cockerel and pullet, H. B. Donovan.
White Cochin Bantams.—Best cockerel and pullet, Wm. McNeil; best collection, Wm. McNeil.
Buff Cochin Bantams.—Best cock, hen, cockerel and pullet, Wm. McNeil.
Black Cochin Bantams.—Best cock, T. J. Kiley; best cockerel and pullet, T. J. Kiley; best cock, hen, cockerel and pullet, T. J. Kiley.

Partridge Cochin Bantams.—Best cock, A. W. Bell; best hen, A. W. Bell.
White Booted Bantams.—Best cock, hen, cockerel and pullet, T. J. Kiley.
Black Tailed Japanese Bantams.—Best cock, hen, cockerel and pullet, R. Oke.
White Tailed Japanese Bantams.—Best cock, hen, cockerel and pullet, R. Oke.
Polish Bantams.—Best cock, hen, cockerel and pullet, Wm. McNeil.
Bronze Turkeys.—Best cock, 1 year and under 2, Jas. Ford & Son; best collection, J. Baker.
Holland Turkeys.—Best hen, Baker Bros.; best collection, W. H. Beattie.
A. O. V. Turkeys.—Best collection, A. G. H. Luxton.
Toulouse Geese.—Best gander, A. Bogue; best male, 1904, Geo. Colwell; best goose or gander, 1904, Geo. Colwell; best female, 1904, Geo. Colwell.
Bremen Geese.—Best male, old, Geo. Colwell; best male, 1904, A. McDougall & Son; best female, old, Geo. Colwell; best female, 1904, T. M. Shea; best collection, Geo. Colwell.
African Geese.—Best goose, 1904, Geo. Colwell; best gander, 1904, M. T. Burn.
A. O. V. Geese.—Best male, old, M. T. Burn; best female, young, Geo. Colwell.
Aylesbury Ducks.—Best drake and duck, 1904, H. H. Wallace.
Rouen Ducks.—Best male, Geo. Colwell; best drake, 1904, W. R. Knight; best duck, 1904, Jas. M. McCormack; best old pair, Geo. Colwell.
Pekin Ducks.—Best male, old, A. Bogue; best female, old, A. Bogue; best male, 1904, Geo. Colwell; best female, 1904, C. A. R. Tilt; best young pair, Geo. Colwell.
Indian Runner Ducks.—Best male, old, John Colson; best male, 1904, Geo. Colson; best female, old, John Colson; best female, 1904, Geo. Colwell.
Cayuga Ducks.—Best male, old, I. T. Knight; best male, 1904, I. T. Knight; best female, old, G. & J. Bogue; best female, I. T. Knight.
Colored Muscovy Ducks.—Best male, old, M. T. Burn; best male, 1904, I. T. Knight; best female, old, I. T. Knight; best female, 1904, Baker Bros.
Best collection, geese and ducks, Geo. Colwell.
Pheasants.—Best collection, R. Goldie.

PIGEONS.

Carrier.—Cock or hen, 1904, Geo. White.
Pouters.—Silver Medal for best collection, C. H. Currier; cock or hen, 1904, R. Scott.
Clean Legged L. F. Tumblers.—G. J. Ashman & Son.
Muffed Tumblers.—Best collection, T. J. Ashman.
Long Faced Tumblers.—McCormack Silver Cup, best collection, T. J. Ashman.
White Trumpeters.—Best pair, Chas. Massie.
Jacobin.—Cock or hen, 1904, 1st, A. W. Barton; 2nd, R. K. Barker; best young bird, any color, A. W. Barton.
Blue Fantail.—Hen, W. J. Thompson; best cock, W. J. McCormack.
Fantail.—Cock or hen, 1904, W. J. McCormack.
Magpie.—Cock or hen, 1904, Ottawa Pigeon Lofts.
Blue or Black Chequered Show Homer.—Best cock, C. H. Currier.
Show Homer, A. O. C.—Best cock, C. H. Currier; best hen, F. Bell.
Swallow.—Cock or hen, 1904, A. W. Barton.
Chequered Dragoons.—Best hen, Geo. J. White; best cock, G. J. White.
Dragoon, A. O. S. C.—Best cock, Geo. J. White.
Dragoon, A. O. S. C.—Best hen, Geo. J. White.
Moorehead.—Best cock, W. J. Thompson; best hen, W. J. Thompson.
English Owl.—Cock or hen, 1904, F. Bell.
Canaries.—Vase, best canary in show, F. W. Hodgkin; best Scotch fancy cock, F. W. Hodgkin; best collection Scotch fancy, F. W. Hodgkin; best collection German, F. W. Hodgkin.
Dressed Poultry.—Best pair of white ducks, Geo. Fyfe; best pair of colored ducks, I. T. Knight; best pair Plymouth Rocks, Scanlon Bros.

ANNUAL MEETING OF THE ONTARIO PROVINCIAL WINTER FAIR BOARD.

The annual meeting of the Ontario Provincial Winter Fair Board was held in the Palmer House, Toronto, on February 3rd, 1905, at 7 p.m. The President A. W. Smith occupied the chair.

The minutes of the last meeting were taken as read. The annual report and financial statement were presented by the Secretary-Treasurer, and on motion of Prof. G. E. Day, seconded by John T. Gibson, were adopted.

Prof. G. E. Day moved, seconded by John Jackson, "That a rule be inserted making it compulsory for exhibitors to allow any animals on exhibition, to be used in connection with the 'Judging Competition' when required by the Commitee appointed for that purpose." Carried.

On motion of Lieut.-Col. J. A. McGillivray, seconded by Arthur Johnston, it was resolved: "That the winner of first prize in any class in the 'Judging Competition' shall not be eligible to compete in the same class the following year."

Moved by Major Hood, seconded by Arthur Johnston, "That in the Bacon Hog Class each exhibitor be allowed to make only three entries, and that a pen consist of two instead of three hogs." Carried.

The Secretary made the following suggestion: "The time to begin killing the animals in the various departments will be duly arranged; the killing to be arranged according to the entries in the Catalogue, and exhibitors shall have their animals on hand at the proper time or be deprived from competition."

Moved by F. W. Hodson, seconded by Arthur Johnston, "That this matter of killing the animals be left in the hands of the Secretary and Superintendent, and that a rule be worked out to meet the requirements of the case." Carried.

On motion, it was resolved that the matter in regard to entry tickets be left in the hands of the Secretary, Dr. Bell, and Mr. Elderkin to work out.

Moved by Arthur Johnston, seconded by Thos. Teasdale: That the last clause in rule 4, "or is eligible to be shown in such a class" be struck out, and the rule read thus: "No animal shall compete for a sweepstake or special prize that had not been shown in a regular class." Carried.

F. W. Hodson moved, seconded by Arthur Johnston, "That rule 19 be changed to meet the suggestion of the Secretary." Carried.

After a short discussion as to who should supply the bedding for the animals, it was generally understood that it be supplied by the Exhibition.

Rule 36 was changed to read as follows: "Swine entered in the bacon classes, and those entered in all other classes under nine months old must be bred and fed by exhibitors."

In Class 38, Dressed Carcasses the first clause, "Export Bacon Hogs to be brought to the Show alive, and killed the first or second day of the Exhibition" was struck out.

Moved by Lieut.-Col. J. A. McGillivray, seconded by Thos. Teasdale, "That the matter of going over the prize list be left in the hands of the Executive Committee." Carried.

On motion of Lieut.-Col. J. A. McGillivray, seconded by F. W. Hodson, it was resolved: "That we follow the rule of former years and have the Show the week after the International in Chicago, and fixing the exact date be left in the hands of the Executive."

The Secretary read a number of letters in connection with a protest in the Poultry Department, and on motion of Lieut.-Col. J. A. McGillivray,

seconded by F. W. Hodson, it was resolved; "That this matter be left to the Executive to deal with."

OFFICERS FOR 1905.

Honorary President ..... F. W. Hodson, Dominion Live Stock Commissioner, Ottawa.
President ..... Arthur Johnston, Greenwood.
Vice-President ..... Lieut.-Col. J. A. McGillivray, Bedford Park.
Secretary-Treasurer ..... A. P. Westervelt, Toronto.

Committees.

Executive.—Arthur Johnston, Greenwood; Lieut.-Col. J. A. McGillivray, Bedford Park; A. P. Westervelt, Toronto; A. W. Smith, Maple Lodge; F. W. Hodson, Ottawa; G. W. Clemons, St. George; Lieut.-Col. R. McEwen, Byron; Wm. Jones, Mount Elgin; Prof. G. E. Day, Guelph; Wm. McNeil, London; D. G. Hanmer, Mt. Vernon; J. H. Saunders, London; G. C. Creelman, Guelph; Hon. John Dryden, Toronto; J. T. Gibson, Denfield.

Cattle.—A. W. Smith; Henry Wade, Toronto; Arthur Johnston; G. W. Clemons; John Bright, Myrtle; A. F. H. Jones, Guelph; J. M. Duff, Guelph; John M. Tyson, Guelph; G. C. Creelman, Guelph; Jas. Bowman, Guelph; Hon. John Dryden.

Sheep.—John Jackson, Abingdon; Jas. Tolton, Walkerton; A. W. Smith, Maple Lodge; Lieut.-Col. J. A. McGillivray; J. M. Gardhouse, Weston; Jas. Millar, Guelph; Wm. Dryden, Brooklin; John T. Gibson, Denfield; R. H. Harding, Thorndale; Lieut.-Col. R. McEwen, Byron.

Swine.—Wm. Jones; Geo. Green, Fairview; Prof. G. E. Day, Guelph; D. C. Flatt, Millgrove; G. B. Hood, Guelph; J. E. Brethour, Burford; Thos. Teasdale; R. H. Harding; John Barber, Guelph.

Dairy.—G. W. Clemons; Prof. G. E. Day; Prof. H. H. Dean; Henry Wade; Geo. A. Putman, Toronto; J. G. Clark, Ottawa; John McKee, Norwich.

Poultry.—Wm. McNeil, London; A. W. Tyson, Guelph; F. W. Hodson; W. R. Graham, Guelph; Allen Bogue, London; F. C. Elford, Ottawa.

Reception.—J. P. Downey, M.P.P., Guelph; A. W. Tyson, Guelph; Hon. John Dryden; Arthur Johnston; F. W. Hodson; A. W. Smith; G. C. Creelman; Mayor Geo. Sleeman; A. F. H. Jones; J. M. Duff; Lieut.-Col. J. A. McGillivray.

Superintendent of Buildings.—D. G. Hanmer, Mt. Vernon.

Assistant Superintendent.—J. H. Saunders, London.

Committee in Charge of Rings.

Cattle.—A. W. Smith, John Bright, Henry Wade, Arthur Johnston.

Sheep.—Jas. Tolton, John Jackson, Lieut.-Col. J. A. McGillivray, J. M. Gardhouse, Lieut.-Col. R. McEwen, Byron.

Swine.—Major Hood, John Barber, Wm. Jones, Thos. Teasdale.

Dairy.—G. W. Clemons.

Committee on Judging Competition.

Prof. G. E. Day, John T. Gibson, J. E. Brethour, John Jackson, G. W. Clemons, Col. R. McEwen.

Judges.

Moved by G. B. Hood, seconded by John Jackson, "That the matter of appointment of judges be left in the hands of the Executive Committee."

FINANCIAL STATEMENT OF THE ONTARIO PROVINCIAL WINTER FAIR.

For the Year Ending December 31st, 1904.

Receipts.

Cash on hand from 1903		$ 37 19
Gate receipts		1,843 10
Advertising		281 25
Grants, Cattle Breeders' Association	$1,930 50	
Sheep Breeders' Association	1,096 00	
Swine Breeders' Association	1,480 00	
Western Poultry Association	2,246 00	6,752 50

Dressed poultry sold		90 39	
Dressed carcasses sold		1,127 68	
Geo. Matthews Co., for bacon hog prizes		25 00	
Whyte Packing Co., for bacon hog prizes		50 00	
Jos. O'Mara, for bacon hog prizes		25 00	
Park Blackwell Co., for bacon hog prizes		25 00	
Wm. Davies Co., for bacon hog prizes		100 00	
Collingwood Meat Co., for bacon hog prizes		50 00	
Ingersoll Packing Co., for bacon hog prizes		50 00	
Holstein-Friesian Association, specials		95 00	
Dominion Department of Agriculture grants		629 00	
Prince of Wales prize, Dairy Cattle	$ 50 00		
Prince of Wales prize, Swine	50 00	100 00	
Net receipts, sale of catalogues		20 20	
Interest and refunded exchange		25 60	
Entry fees, Cattle	$ 338 50		
Sheep	294 00		
Swine	271 50		
Judging	63 50		
Dressed Poultry	53 75		
Live Poultry	1,447 40	2,468 65	
			$13,795 58

EXPENDITURES.

Executive and Committee		$ 240 00	
Postage, $250.00; Stationery, $39.38		289 38	
Printing, $372.75; advertising, $172.90		545 65	
Expenses, Judges		99 60	
Lectures and Public Meeting		197 50	
Telegraph, Telephone, Express, etc		43 21	
Prizes, Cattle Department	$1,930 50		
Sheep Department	1,096 00		
Swine Department	1,480 00		
Poultry Department	2,246 00		
Judging Department	220 00		
Seed Department	59 00		
Dressed Poultry Department	268 00	7,299 50	
Entry fees credited to Poultry Association		1,447 40	
Secretary's salary		500 00	
Auditor		5 00	
Lighting Fair Building		217 16	
Typewriting and Office Work		486 31	
Police services		25 00	
Dressed carcasses paid for		1,127 72	
Dressed Poultry paid for		97 34	
City of Guelph, as per agreement		260 00	
Expenses of block test, balance 1903	$ 80 80		
Expenses of block test, 1904	107 40	188 20	
Reporting meetings		80 00	
Overpaid entry fees refunded		7 50	
Refund to exhibitors coming over 100 miles		15 60	
Fuel for furnace		61 25	
Straw, sawdust and shavings		72 20	
Alterations and fitting building		83 34	
Milk sold, 1903		9 51	
General wages, including Superintendent and Assistants		385 25	
Expenses of Judging Competition		49 00	
Essays on dressed carcasses, 1903		5 90	
Miscellaneous items		16 74	
Balance due Treasurer			59 70
			$13,855 26

Audited and found correct.
J. M. DUFF, Auditor.

A. W. SMITH, Maple Lodge, President.
A. P. WESTERVELT, Treasurer.

THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

The Eastern Ontario Live Stock and Poultry Show held at Ottawa, Ontario, March 6th to 10th, 1905, was an unqualified success. The exhibits of poultry, pigeons, and pet stock were exceptionally large, the best that has ever been held in Eastern Ontario.

The exhibit of dairy cattle was good. The show of dressed meats, both sheep, beef and hogs, was large and very interesting, and the farmers of the district took a special interest in this exhibit.

The lectures throughout were largely attended, standing room only being available at some of the meetings, and at one of the meetings some of the people were unable to gain admittance.

OFFICERS FOR 1905.

Honorary President .... F. W. HODSON, Ottawa.
President .... J. C. SMITH, Hintonburg.
Vice-President .... J. G. CLARK, Ottawa.
Secretary-Treasurer .... A. P. WESTERVELT, Toronto.

COMMITTEES.

Management.—The President, Vice-President and Secretary; F. W. HODSON, Ottawa; O. E. CULBERT, Ottawa.

Executive.—J. C. SMITH; J. H. GRISDALE, Ottawa; ARTHUR JOHNSTON, Greenwood; A. W. SMITH, Maple Lodge; J. G. CLARK, N. F. WILSON, Cumberland; THOS. TEASDALE, Concord; R. CLARK, Ottawa; R. H. HARDING, Thorndale; J. A. RICHARDSON, South March; DAVID BARR, Renfrew; O. E. CULBERT, GEORGE HIGMAN, Ottawa; F. J. BLAKE, Almonte.

Cattle.—ARTHUR JOHNSTON; J. G. CLARK; N. F. WILSON; JOHN R. REID, Ottawa; G. C. CREELMAN, Guelph; ALEXANDER MCLEAN, Carleton Place; Hon. W. C. EDWARDS, Rockland; A. W. SMITH.

Sheep.—J. H. GRISDALE; R. H. HARDING; J. A. RICHARDSON; R. R. SANGSTER, Lancaster; C. W. YOUNG, Cornwall.

Swine.—THOS. TEASDALE; J. C. SMITH; R. CLARK; J. H. GRISDALE, Ottawa.

Dairy.—J. A. RUDDICK, Ottawa; J. H. GRISDALE, Ottawa; A. C. MACFARLANE, Ottawa.

Poultry.—O. E. CULBERT; F. H. GISBORNE; G. H. HIGMAN; F. J. BLAKE; F. C. HARE, Ottawa; W. R. GRAHAM, Guelph.

Seeds.—Warden GEORGE BOYCE; B. ROTHWELL; F. BRADLEY; J. C. STEWART; G. H. CLARK.

Reception.—F. W. HODSON, His Worship the Mayor of Ottawa; Ald. STROUD.

Superintendent .... D. G. HANMER, Mt. Vernon.

Poultry Superintendent ....R. E. MCKINSTREY, Ottawa.

POULTRY MEETING, TUESDAY EVENING, MARCH THE 7TH.

This meeting was held at the Lecture Hall in connection with the offices of F. W. Hodson Esq., Live Stock Commissioner for the Dominion of Canada, and was fairly well attended.

F. W. Hodson, Esq., Live Stock Commissioner, occupied the chair, and in opening the meeting said that he was very sorry that Mr. F. C. Elford, the first speaker, was ill, and would not be able to attend, but that they had been able to secure an excellent speaker to represent him in Mr. Fortier, and he had much pleasure in calling upon Mr. Fortier to address the meeting.

A MODERN POULTRY HOUSE FOR THE FARMER.

By Victor Fortier, Experimental Farm, Ottawa.

At the outset, let me say that I shall this evening discuss only the practical side of poultry housing. Nothing is more practical than a good poultry house for a farmer, and this is what I wish to discuss now.

The first thing that a farmer wants if he expects to successfully raise poultry, is a house that will be comfortable, will meet his requirements, and will be cheap.

In the second place, the house must be well exposed to the sun, because, as you know, where there is sunlight there will be no disease.

Thirdly, the ground should be very dry and well drained.

Fourthly, the house should be well lighted and well aired.

Fifthly, it must be kept very clean.

I have here a chart of a poultry house 10 ft. by 20 ft. This house will accommodate 25 birds and give them an area of 8 sq. feet, or an area of 6 sq. feet for 35 birds, but if you house 35 birds in this building you will have less profit than you would have if the number were 25. (Do not forget that the hen requires plenty of room). The floor can be made with cement, wood or gravel.

A Member:—Which would you prefer?

Mr. Fortier: I prefer cement or gravel; both give good satisfaction, but cement is more permanent and easier to keep clean.

Mr. Graham: Do you use any sand on top of the cement?

Mr. Fortier: This winter I used only litter.

Q. How deep do you have the litter?

A. Six to eight inches.

Q. How often do you change it?

A. Every two or three weeks; whenever it becomes damp, or dirty.

Q. Do you use straw or do you use chaff?

A. We use both.

Q. Did you ever try leaves?

A. Yes, sir.

Q. How do you like leaves?

A. Very well; any kind of litter will do, provided it is dry.

Mr. Gilbert: I think chaff is about the best.

Mr. Hodgson: What do you mean by chaff?

Mr. Gilbert: The waste of the barn; the chaff buries the grain and causes the hens to scratch for it.

Mr. Fortier: Six to eight inches of straw is as good as any thing you can get.

Reverting to the plan of house, in the under discussion you have a scratching pen 10 by 10 feet and a roosting room 8 by 10 feet. The roosting room is built with double boards, ceiling also; and the scratching pen with single boards. The height of the building is 5 feet at the back and 7½ feet in the front. There is one window in the roosting pen; the front of the scratching pen can be made with a large window in it, or you can have a cotton front, and a glass window. I have seen some houses with the cotton front. They have given good satisfaction, but I do not recommend the use of the cotton front only for this part of the country.

A Member: At what temperature do you keep the house?

Mr. Fortier: I prefer 35° F. to 40° F. in the roosting part. The scratching pen is the same temperature as the outside air. Do not forget that it

is not the degree of cold which affects the hens, but the removal of them from warm to cold house, or vice versa. If you want to get eggs in winter time you must feed your hens in the scratching pen from fall to spring. I have seen some men who fed the birds in the scratching pen just when they wanted the eggs, but they could not make the hens work because they were not used to it.

Mr. Hodson: Have you any trouble in keeping the roosting house dry?

Mr. Fortier: No, sir.

Mr. Hodson: I think it is best to fill the space between the inside and outside boards with shavings

A Member: In our section of the country a number of houses have been put up, in which half-inch boards have been used, then paper, and then clapboards on the outside.

A Member: Did you make any plan for ventilation in that house?

Mr. Fortier: Yes, I have a sliding pane in the top of the window, and this is always kept open to a certain extent, excepting when the weather is very cold.

Mr. Graham: What do you call a cold night?

Mr. Fortier: 10° F. to 20° F. below zero is a very cold night. A building constructed according to this plan will cost about $2.50 per running foot, not including floor. A floor of wood or cement will cost about 50c. per square yard.

A Member: Don't you think the building would be much better if you had it 2 feet higher, so as to allow a two foot space between the ceiling and the roof? Such a building would give you space for keeping the straw, and would also, I think, be cooler in summer time and warmer in winter?

A. Such a building would, of course, be more expensive than one constructed according to this plan. The aim is to get a poultry house as comfortable as possible, but at the same time as cheap as possible. Most farmers have no difficulty in storing the straw, etc., in buildings adjoining the poultry house. A building constructed according to this plan will be found quite comfortable, both in summer and winter. You will notice that this plan allows for double board ceiling in the roosting house. A single board ceiling will, of course, be too warm in summer and cool and damp in winter.

Mr. Hodson: Three inches of dry earth or sand will make a cool roof for the summer time and warm in the winter if you have that on the top of the ceiling and have the roof good and tight, so that it will not leak and let the earth get wet.

Mr. Fortier: I prefer to have the air space filled with something. If you cannot get shavings or sawdust, earth may be used. This other plan has no scratching pen, but is double boarded all over. Like in the other plan, I prefer to fill the three inches space in the side and five inch space between the ceiling and the roof with sawdust and earth, or any other suitable material, provided it is dry. The dropping boards are about 20 inches from the floor, and the roosts 4 inches higher, for the large breeds. For the small varieties, the dropping boards and roosts could be placed a little higher in order to leave room for nests underneath, but do not place the nests on the floor. As you will see, the nests in both plans are hidden. In this plan the roosting and scratching pens are in one. In order to provide exercise the feed is scattered in the litter, and the slides in the window will supply the fresh air. This building will be 10 by 15 feet ground plan, and walls 5 feet high in rear and 7½ feet in front. Such a building will house 25 birds. A window 4 ft. by 5 ft. will be large enough. The cost will be about $2.00 per running foot, not including the floor. In this plan is provision for a

room 3 by 3 feet for the rooster. As soon as the breeding season is over you must separate the rooster. Let me emphasize this fact, because this is a most important point for the farmer if he intends selling his eggs on the market. If he is blamed for selling bad eggs it is not always his fault. Very often the farmer is blamed for the quality of the eggs he sells, but he is not the responsible party; the rooster is the really guilty party. Remove the rooster and the eggs will be unfertile, and whatever temperature they may be subjected to for a short time they will remain sound.

Another advantage resulting from the separation of the males from the females will be the increase in the average selling price of the eggs. Eggs, like the other farm products, are bought at an average price; those of first quality are undersold in order to compensate for those of poorer quality. An improvement in the quality will necessarily be followed by an advance in the selling price.

Mr. GILBERT. That is one of the most important points. It affects the whole reputation of the Canadian egg trade.

Mr. FORTIER: The farmer may say: "Supposing I put my rooster in that small box all summer, my neighbour will not do so". The answer to that is, if your neighbour is doing wrong you are not obliged to do wrong likewise. I have been told by egg dealers in Montreal that they give a certain price for eggs because they calculate that there will be about one third of them bad, because the eggs are fertilized.

Mr. HODSON: In ordinary farm practice is it not a good thing to take the rooster's head off as soon as the breeding season is over?

Mr. FORTIER: Yes, in some cases, but supposing a farmer has a selected bird from a hen that has been giving him 200 eggs a year, then it will pay him to keep that rooster as long as he can.

Prudence in the choice of the breeding male bird always results in great advantage to the poultry keeper. It is best for him to select a few good laying hens from which to raise his breeding males. He will then know perfectly the individual qualities of his rooster and will be in a better position to improve his stock. A male bird bought at random without any knowledge of his previous history may do a great deal of harm to a flock. If he happens to be deprived of the proper qualities he may in a year or so reduce considerably the possible profits.

Mr. HODSON: How long should he keep him?

Mr. FORTIER: About 4 to 5 years, but of course in the last year he must give him fewer hens. Once more, if you have a good rooster keep him as long as possible. I prefer to keep a good rooster of my own rather than buy another one that I do not know anything about.

A MEMBER: How many hens do you recommend to keep with one male bird?

A. For a heavy breed of hens running at large, from 18 to 20 hens is sufficient for one rooster.

In conclusion, I would insist on the following points being observed if eggs are to be obtained in winter:—

1. The hen house must be sufficiently large, dry, well lighted, well ventilated and kept clean.
2. The hens must be kept constantly active.
3. The nests must be dark.
4. The roosters must be kept separate from the hens except during the breeding season.

WINTER EGG PRODUCTION.

By W. R. Graham, Manager Poultry Department, O.A.C., Guelph.

The greater part of Mr. Graham's address is reported in the proceedings of the Guelph Winter Fair, and will be found on page 56.

At the present time we have four experimental houses in Guelph. One of the houses is built of single ply boards, and the cracks between the boards are battened. This is a cold house. It is 12 by 24 and calculated to accommodate from 40 to 50 birds. It is 7 feet high at the eves with a pitched roof, and the portion between the ceiling and the roof is covered with straw. The idea of using straw is to absorb any dampness that may be in the house.

The next house is on the same plan with the exception that we have a dead air space and the building is sheeted inside and outside with tongued and grooved lumber and tar paper in between. The next house is built somewhat similar to Mr. Fortier's with the exception that two-thirds of the front is made with canvas and the other is made of windows. The reason we put in windows is in case of a stormy day, we can leave down the front and it will be light enough. If you have a curtain front the house is rather dark on a dull day, and in that house we have a curtain for the roosting house so that we can let it down on a very cold night, but we never put the curtain down until zero weather. These houses are stocked with Wyandottes and Orpingtons. Up to the present time the hens in the cold house have laid the most eggs and eat no more food.

Mr. Gilbert: How many hens?

A. Twenty Wyandottes and 20 Orpingtons. The Orpingtons lay from 9 to 10 eggs a day. The Wyandottes are not doing quite so well. They have not laid as well this winter as usual. I do not think these particular birds are ideal winter laying, for the reason that we have both pullets and old hens. We are going to run this experiment for five years.

A Member: How do you keep the hens from eating their eggs?

Mr. Graham: If they start eating their eggs I simply feed them all the egg shells they will eat. I buy a bushel of egg shells from a restaurant and dump them down and let them eat them. I have found that the best thing to stop them. They get thoroughly sick of egg shells.

A Member: Do you break the shells?

Mr. Graham: No; just dump them down and let them get a good sickening of them; they eat so much that they do not care for any more.

Mr. Gilbert: Have you ever found the hens getting over-heated at night where you have a curtain over the roosting place. The reason I ask that is because at the experimental place in the States they have found they produced roup hens coming from the warm roosting place and going down to the cold floor.

Mr. Graham: The hens in the warm house were not as good as the hens in the cold house. One day this winter the temperature in the cold house was 7 degrees below zero; of course the Orpington males in that pen had their combs frosted. You have to get your birds accustomed to the climatic conditions from the beginning.

A Member: How much feed do you give the hens?

A. One and three quarter pounds of grain to 20 birds for the morning feed, and about three pounds grain at night with nearly one pound of meat at noon.

A Member: Have you tried peas?

A. We do not feed any peas, I never could get them to eat peas.

Q. Do you cut the clover hay fine?

A. No just go to the barn where they are throwing down clover hay and you will get a bushel of leaves and throw that into the hens.

Q. Do you feed it dry?

A. Yes, occasionally I will steep it.

Q. What sort of a rooster is best to put with a half breed, light Brahma and Plymouth Rock

A. It would depend on your cross. Are your breeds leggy or blocky?

A MEMBER: They are blocky. I want to put in a laying strain.

MR. GRAHAM: It might be just as well to use another Plymouth Rock.

A MEMBER: What about a Wyandotte?

MR. GRAHAM: I would rather take one pure breed and stick to it. You have a chicken now like a Plymouth Rock with feathers on its legs and if you use a Wyandotte you will have a peculiar mixture.

A MEMBER: Would one rooster be sufficient for 40 hens?

MR. GRAHAM: It depends on the individuality of the bird and the range they have, a bird that is the essence of vigor might do, but I would rather have two or three. It would be better to take 10 of the best hens and put them with a good bird and be careful to give the 10 you select a reasonable amount of exercise. The tendency with farmers is to put the hens they are going to breed from in a box stall and then they wonder why the eggs do not hatch. You must give the hens exercise, and keep them out in the fresh air.

A MEMBER: You have not said anything about what you give the hens to roll in.

MR. GRAHAM: Our hens roll in the sand on the floor.

A MEMBER: Last year I went out and got four boxes of dust from the stone road, and once in a while I put a half bushel of that in a box in the hen house, and that box would be filled with hens rolling in it.

MR. GRAHAM: We used that years ago and I find if I want material in the winter time that the coal ashes sifted are good. They are warm and we are able to get the birds to go into the coal ashes quicker than they will into the road dust. From now on you should dust your male birds with some insect powder once a week. You will find the male bird has the happy faculty of collecting the lice from the flock.

A MEMBER: Do you put anything on the roosts?

MR. GRAHAM: We cover our roosts with a mixture of carbolic acid and coal oil, a pint of crude carbolic acid to a gallon of coal oil, and we paint the perch once a week until we get it thoroughly saturated, and by following that method up I have never yet seen a mite in the second long house.

MR. FORTIER: Insect powder is no good to me. I am right against it, and I cannot advise a farmer to buy any of it. Blue ointment is a great deal better, and if you put a piece about the size of a grain of barley on to the rooster it is plenty, and you can get enough for 100 birds for ten cents.

A MEMBER: Where do you put that ointment on the bird?

MR. FORTIER: Put it under the wing, the tail, and in the fluff. If you have a bird that is covered with lice try that and you will find it will kill all the lice.

A MEMBER: Do you have a board floor on your house?

MR. GRAHAM: No; boards are too expensive. We have an earth floor altogether in our house and we put in three inches of fresh sand every year. In the spring we take all the straw out of the house and dump it in the field for manure, and then we put new earth in on the floor.

A MEMBER: Don't you think it is a good plan to put coal ashes on the boards under the roost?

Mr. Graham: Yes, we take coal ashes and scatter it along on the roosts and we find that an advantage in cold weather as it keeps the droppings from freezing to the boards.

A Member: Do you think it has a tendency to keep the vermin off the roosts.

Mr. Graham: Possibly. One of the greatest troubles we have had in the warm chicken house is with the dust. It is so dry and warm. They get working in there and make a regular cloud of dust.

A Member: Don't you think it is a good place for the mites to breed in the straw.

Mr. Graham: No; I do not think so, unless your hen house is fearfully dirty.

A Member: What weight would you think would be proper for an old hen?

Mr. Graham: An ordinary hen should not weigh more than about 8 lbs.

FUTURE OF THE POULTRY INDUSTRY, WITH PARTICULAR REFERENCE TO THE EXPORT TRADE.

By A. G. Gilbert, Manager Poultry Department, Experimental Farm, Ottawa.

I am glad that Mr. Hodson has introduced me as his old friend because I was young when I commenced this business, and I find myself a great deal older than some of my early day friends would perhaps like me to say, for they have kept me company. I remember some little time ago remarking to Dr. J. W. Robertson, whom we all know so well, "that if I was only twenty years younger, with my present experience, I would likely be more useful." The Professor replied, "Oh, yes, but you cannot have youth and wisdom." This I repeat, Dr. Osler to the contrary. (Laughter.)

I find myself down to-night for a large subject, "The future of the poultry industry with reference to the export trade." Let me state at the beginning that I have never had fear as to markets, but I have been very much concerned as to the small quantity of both eggs and poultry that have been produced in comparison with what it ought to have been. As a matter of fact, our supply of both products are barely sufficient to supply our home market, let alone the almost unlimited British market, which an attempt was certainly made for some years to reach. I speak of the superior quality of both products which met with profitable acceptance in Britain, but they didn't go in quantity enough, that was the only trouble. But now, we are told, that we actually have, in face of an increased production, decreasing exports. Why? There can be only one answer,—that the home demand has increased to a greater extent than the production. And still another phase, and it is that with increased production we have actually increasing rather than decreasing values. Prices for fresh eggs, that is new laid eggs, were never higher than they were last winter. The same may be said of the superior quality of poultry later in the season. Our people are undoubtedly eating more eggs and poultry. A predisposing cause may be the high price of meat which is leading people to eat more eggs. We are told that there is as much protein in a dozen eggs as there is in a pound of beefsteak with less waste. There are other reasons which time will not permit of enumerating on this occasion. There is another feature of the home market that is worth

noting, and that is the high prices paid for new laid eggs during the mid-summer months of the past two and three years, when 18, 20 and as high as 25 cents per dozen was paid for strictly new laid eggs. Our people are evidently determined to eat better things. May I say that a people who display a taste for the best are getting better themselves? The trend of events as described is significant. It is certainly worth noting. Let us for a few minutes look at the two markets. First we take the

British Market. Its Value and Requirements.

To Mr. George Johnston, Dominion Statistician, who has always been kind and courteous to me, I am indebted for the following figures. Last year Great Britain imported eggs to the value of $33,500,000 and poultry to the value of $5,000,000, that is she imported eggs and poultry to the value of nearly $40,000,000 and the countries which supplied that market were:

Russia	Eggs	$10,000,000
Denmark	"	7,000,000
Germany	"	5,500,000
Belgium	"	4,185,000
France	"	3,500,000
Canada	"	645,000
Other Countries	"	1,790,000
		$33,500,000

Of this amount Canada sent only $645,000 worth of eggs. Of the $500,000 worth of poultry, she sent:

Dressed Poultry, worth	$160,518
Live Poultry, worth	41,716

The above figures show a large field open to us. Are we making any efforts to take advantage of it. Had we a surplus over and above our home supply, it would surely find a ready customer, provided it was of the requisite quality.

Requirements.

This market calls for large eggs weighing if possible six to one pound and not less than eight to a pound. They should be of good flavor, cleanly and carefully packed so that on being exposed for sale they will present an inviting appearance. But our eggs do not always arrive in this condition. They too frequently arrive stale and dirty in appearance. Mr. Clements, a well known merchant in the provision trade of Glasgow, and who frequently comes to this country, on one occasion told me that the first eggs of the year his firm got from Canada came in good shape and in good condition, but later eggs were not so good, and as the season advanced they were both badly packed and were practically unpalatable. I am happy to say that the eggs of recent shipments have been packed in card-board cases and have arrived in a much better condition and much cleaner in appearance. The cause of the stale condition of the eggs, I may explain a little later on.

In poultry the demand is for the superior fowl with a light leg and a light skin. I now quote from a bulletin gotten out by Professor Robertson, in regard to turkey shipments.

The Dressing, Packing and Shipping of Turkeys.

Most of the shipments have been sent more as an occasional venture than as a part of regular business. One importer of poultry in Great Britain says: "Everybody thinks he is qualified to pack and ship poultry, whereas as much as any other article of food it requires the skillful handling which can be given only as the result of experience." It will be prudent for a beginner to send only small trial shipments early in the season, and thus open up a trade which can be enlarged as it is found profitable. If turkeys be prepared, packed and shipped according to the requirements of the British markets, they will, undoubtedly, meet a good demand and secure prices equal to those of the turkeys imported from France and other continental countries. The price varies from year to year, and also at different times of the year. Wholesale, the range of prices may be from 5 pence per lb., up to 9 pence and over per lb., for the finest quality of birds and the best condition.

The time to ship. The demand is usually good from about the first of December to the first of March. The reception of the poultry in the British markets is affected by the condition of the weather much less now than formerly. Cold storage facilities in the several cities in Great Britain enable the handlers to guard against deterioration from mild or soft weather on the arrival of the birds.

For the Christmas trade, birds of large size command a relatively higher price per lb., than small ones. Cock turkeys of the largest size should be marketed before Christmas. Hen turkeys may be sent from 6 lbs. each upwards and the demand for them continues until March.

The home market and its requirements. This market calls for eggs in winter and the superior quality of poultry in early summer. Why should there not be a greater supply of eggs in winter? One answer is simply this, that the obtaining of eggs in winter is not so dead easy as many people imagine. Another reason is that production is attended with greater expense. Again the great majority of the fowls in the country are kept in cold houses, and it is not yet fully realized that when the house is cold a greater amount of food is required to produce the egg. The fowls first draw on their rations for the sustaining of animal heat and it is the surplus over and above that requirement which goes into the product. Let me read the following from my report of last year as to why more rapid poultry development does not take place.

"The obtaining of eggs in winter is not so easy as at first glance may seem. Success is dependent upon conditions, which are more or less exacting according to location, complete knowledge of which is imperative to success. This is not always realized. The numerous letters received by the writer from different points, show that many are anxious to get results before they know how to do so. And for that reason many try only to fail. On the part of the specialist, expert knowledge is requisite. On the part of all, patience, energy, perseverance and adaptability. Without them success is not likely to be obtained."

Another drawback to successful poultry development is often met with in the enthusiast who establishes a plant, buys a number of birds and then writes for information as to proper methods which should have been first thoroughly learned. A letter received some time ago may be quoted as a case in point. It is as follows: "Dear Sir: I recently had opportunity to purchase at a bargain one hundred Barred Plymouth Rock pullets and I did so. Will you please tell me how to successfully manage them."

It is hardly necessary to say that in such a case successful results are not likely to follow, and then poultry keeping is at once declared non-profitable.

Another drawback is the practice, frequently on the part of the farmers, of keeping more fowls and hatching more chickens than can profitably be managed. It may be admissible to repeat in this connection, a suggestion made in the report of 1902, to the effect that farmers should keep no more fowls than they can manage profitable, nor should they attempt to rear a greater number of chickens than circumstances will permit.

The Summer Market.

You say a summer market for eggs. Why eggs in summer heretofore have been at their lowest values! Yes, I am aware of that and also that for the past two summers eggs have been exceptionally high. It may be taken as an instance of the rapid development that is taking place in the poultry branch of farm work, when I say that there is now a summer market imperatively calling for strictly new-laid eggs with unimpaired flavor. They must also be of inviting appearance. The well-known firm of purveyors, Messrs. Bate and Son, Sparks Street, Ottawa, paid as high during midsummer last, as 25 cents per dozen to those from whom they could get eggs, strictly new laid.

It may be fairly asked why summer eggs are so high. It is remarkable instance of the rapidity with which poultry keeping is taking place to find summer prices which have usually been 10 and 12 cents per dozen attaining such values at 18, 20 and 25 cents for the same number. Eggs of the cheaper varieties were certainly to be had at the same time, but the increasing demand was for the better article. Why should new laid eggs be so high at this season? The reply was almost invariably given, "Because they are hard to get," which was doubtless true, but it is not the only reason. A more likely one is that customers of the better class have found out, or, are being fast educated to the great difference there is between the clean looking, new laid egg, with the delicious flavor it should always have, and the comparatively stale article. It is fast being realized that flavor and appearance can only come from carefully fed and cleanly kept fowls. Certainly in both appearance and flavor are the first quality eggs preferable to those laid by hens that have access to filthy substances, dirty water and deposit their eggs in unclean and ill-smelling nests.

Another reason may be that the more exacting demand for such carefully selected eggs has resulted in city dealers buying from only reliable persons, who can be depended on to send only what is wanted. These producers must be near the city market, or railway shipping point. A new laid egg stales quickly and shipments must necessarily be made frequently and in small quantities, in order to permit of the choice article being placed, as fast as possible, in the hands of the consumer. And the wide-awake city purveyor finds out the number of hens the producer has, for he knows that no person who has a few hens can save up eggs to make a large shipment without having the greater number of them in a stale condition. It is all important then, that the producer should realize the value of and be guarded by the following points:

1. An egg, as soon after it is laid as possible, should find its way to the consumer.

2. After being taken from the nest, the egg should be kept in a cool, sweet-smelling cellar or cupboard, and the flavor so preserved from contamination.

3. The nests in which the eggs are laid should be clean and free from odors.

4. The food of the fowls should be pure and wholesome.

5. It should be a strict rule to have no male bird with the hens which lay eggs for the market. The eggs will so be unfertilized, which is desirable.

Another cause which to a certain extent may be affecting the usual summer supply of eggs, is the practice, becoming rapidly more common, of having fowls moult in July, August or September. If we are to have no male bird with our laying stock how are we to breed our chickens?

6. For breeding purposes in spring time select a suitable number of the best shaped, best laying and largest hens, and mate with them a male bird of good type and undoubted worth. These should be kept in separate quarters. When all the eggs desired for hatching purposes have been secured, the male bird should be disposed of and the hens kept in the breeding pen for two weeks longer before being allowed to run with the others. The above plan will do away with the necessity of having several male birds running promiscously with the laying hens in order to have eggs for hatching.

A Possible Result of High Summer Prices.

We now come to a new and striking feature as a result of the high prices paid for strictly new laid eggs in summer months, and the effect it may have on the raising of chickens. It is in the summer months that chickens are hatched on the great majority of farms. If the eggs are consumed, where are the chickens to come from?

The reasonable conclusion is that whatever branch of the business pays the producer best is the one he is most likely to prosecute. Apart from the inducement offered by the high prices of last summer it does seem as if the production of eggs during the summer would commend itself to the farmer, at any rate, as it is likely to be attended with the least trouble to him at the time of the year when he is the busiest. Observation has shown that there is a greater likelihood of a larger and more immediate supply of new laid eggs in winter, from the farm, than of the superior quality of market poultry in later months. The reason for this is that farmers have more time in winter to care for their laying stock (and which attention is absolutely necessary) than they have in spring and early summer to devote to the hatching and rearing of chickens. So it would seem that from both summer and winter standpoints the production of eggs is likely to be attended with the least difficulty to the farmer. We have also a skilled poultry authority, Mr. Boyer, giving the following advice to an inquirer in a recent number of the *American Poultry Journal* to "confine himself to the production of eggs as being the most profitable." It is not likely, however, that a dearth of chickens will immediately follow, and it is quite possible that the high prices of summer and autumn eggs of the past two seasons may not be permanent. But it is a significant phase of the situation and one that the student of events is bound to take cognizance of.

The Superior Quality of Poultry. The ideal chicken borne in mind was one of rather blocky frame, showing a rounded breast with fairly long, low and straight breast bone well covered with flesh and thighs carrying a generous proportion of meat, with white flesh and legs of light color. Such a chicken should present a plump and inviting appearance and make a model three months' old bird for early home market, or export. Experience so far gained goes to show that none of the utility breeds of to-day furnish three months' old chickens of acceptable type and greater number on an average, than another. All varieties tried have produced early chickens of

desirable shape and size, but in limited number. It is a matter of congratulation that we have the desirable types furnished by several rather than by one variety, for it renders their production so much easier. How, then may these desirable types be produced?

How the Best Types May be Produced.—This should not be a matter of difficulty. Selection of the best types of the different varieties and breeding from them only, will eventually bring the early chickens of shape, size, quality and in numbers wanted. Skillful and careful crossing of breeds, with the aim of producing layers and flesh formers combined, resulted in Plymouth Rocks, Wyandottes and Orpingtons, with their many subsequent varieties, which as utility fowls are hard to better. And what has already been so successfully achieved can surely be repeated in the production of the early chickens of acceptable type.

Can we have the three or three and a half months old chick? Let the following be the answer: The chickens were taken, when weighed, from the running in a field. The following are the weight developments of the chickens, up to three months of age and previous to being used for the experimental work referred to viz.:

Barred P. Rock Cockerel at 3 mos	3 lbs.	10 oz.
White Wyandotte " "	3 "	11 "
Favorelle " "	3 "	7 "
Silver Gray Dorking " "	3 "	15 "
Buff Orpington " "	3 "	12 1-2
Rhode Island Red " "	3 "	4 oz.
Light Bra. B.P.R. (2nd cross) "	4 "	6 "

Chickens obtained from a farmer near Carleton Place, Ont., for experimental fattening weighed as follows:

Barred Plymouth Rock Cockerels at 2 mos. and 6 days: 2 lbs. 5 oz. 2, 4: 2, 5: 2, 2. These chickens were also taken from a field, but they had been regularly fed and well cared for from time of hatching.

Taking into due consideration the opportunities afforded to the producers of eggs and poultry by the home and British markets, I have no hesitation in saying that the poultry department of the farm, when properly conducted, should be one of the best paying.

Mr. G. C. Creelman, President of the Ontario Agricultural College, Guelph: I have been asked to take the chair during the meetings you are to have here at Ottawa. I know that each speaker will receive the attention due him and you are going to be favored this afternoon with speeches from prominent men, men who have a provincial, national and international reputation, men who are known as specialists in their line. I hope you will all take part in the discussion. It is just as much your meeting as mine and more so in some particulars, and if you desire to ask any questions do so. These meetings should be intensely practical. The Government is only justified in making a provision for a show of this kind on one ground, and that is its educational value to farmers. You have come here to hear and see the best that can be produced in the provinces, and we expect each one of you to receive instruction at these meetings, and you are at perfect liberty to disagree with the speaker if you feel like it. Let us have a free discussion.

RAISING BABY BEEF.

By J. H. Grisdale, Agriculturist, Experimental Farm, Ottawa.

The subject which I am to take up to-day is Baby Beef. To follow clearly throughout the arguments which will be advanced in favor of this method of producing beef, it is necessary to understand what is meant by baby beef. Babies of course are young things, and baby beef is young beef. Baby beef got its name in the United States, where so many other names are originated. The young stuff, taken in hand from the time it is born and shoved on the market as fat beef at about two years old, is so called. Beef of this kind is distinguishable not only before it is killed, but after. You can tell by its appearance the age of the animal, although it may be abnormally large, and also the age of the beef when it is on the block on account of its peculiar quality. This beef has not to-day the name and reputation in Canada that it will have in the future, but it is more or less known in Canada. It is widely and well known in the United States, and I think in a short time will be widely and favorably known in Canada. Our conditions here are even more suitable for the production of such beef than are the conditions surrounding beef producers in the United States.

The reasons for shoving beef cattle on from the time they are dropped until they are ready for the block are various. Now, there is no use trying to persuade a farmer to do anything in which he cannot see money. He wants to see good reasons of a cash kind before going into anything new, and therefore I want to convince you by a few arguments to show in the first place that this kind of beed production is a profitable kind of beef production. If you take a beef animal from the time it is dropped until the time it is six months old, you find that you can put on gains at a cost of from 2 cts. to 3 cts. per pound live weight or perhaps less.

We have shown at the Experimental Farm that gain can be put on from 2 to 3 cents per pound, average of about 2 3-4 cents per pound live weight. If you feed them from 6 month to 12 months the average cost is from 4 cts. to 5 cts. If you continue with the same animal from a year to two years old the cost of putting on a pound of gain, if on pasture alone, in the summer, is from 5 cents to 6 cents, and if you continue with that animal another year, the cost goes up still higher, and you have to pay from 7 to 10 cents to put on a pound of gain. Therefore, the more gain we can put on from the time the animal is dropped until two years old the cheaper is that gain, and the greater are the chances of profit, and there you have the chief reasons why I favor baby beef production.

Another reason is the great saving of time. Supposing a man has room for feeding thirty steers, and he has to keep these steers until they are three years old before they are ready for the block, he must have three lots of steers on hand all the time, and he can get off ten steers each year. If, however, he has to keep them only until two years old he can get off 15 steers each year, each steer weighing just about as much as when he sold off 10 steers each year, and it will not cost him any more to feed 30 steers each year, whether he is turning out 15 or 10; therefore, he is making a gain of 5 steers a year in the space necessary for his feeding operations. He is further making a large gain in the investment as he had to buy steers and hold them for three years. If the operation of feeding off 10 steers a year costs $300 he has the interest on that $300 for three years, but if he keeps them two years only he makes a gain of one year in the interest. Therefore he has the saving of 1-3 of the interest, one-half of the space and nearly one-half of the

cost of the production of flesh. Therefore you have here three patent reasons why this kind of beef production should be considered.

How can we proceed to raise this kind of beef profitably? In the first place we have found that good stock is absolutely necessary. There is no use undertaking to produce this kind of beef, unless we have calves of the beef type. It is absolutely necessary to get them fairly well bred of some beef breed; the dairy breeds will not do at all. The more of the dairy breed that enters into the animal, the less will be the chance of ultimate success. The peculiarity we want in these calves is the ability to put on flesh in the right spots. The calves should be Shorthorns, Aberdeen-Angus, Galloway or Herefords. We have experimented with Shorthorns only. We usually take calves dropped in April or May. They are fed with skim milk from the time we secure them for at least four months. In addition to skim milk, we feed a small amount of flax seed meal, not oil cake meal, but flax seed meal. For the first two or three months this flax seed meal is put in hot water, about a cup full of the meal to a quart and a half of water. The water is kept at a temperature just below boiling for three or four hours, and in that way the meal is turned into a kind of jelly, which may be kept for a considerable length of time. This is mixed with the skim milk at the rate of about a tablespoonful per pound of milk. That is, to the calf that is getting about 5 lbs. of milk, or 1-2 gallon of milk night and morning, we add about five tablespoons of this jelly. It is mixed with the milk and fed in this way for about a month. At the end of the month or when we think the calf is ready to get a little bit more we add a little of the dry meal to the milk. We frequently find it necessary to give it to them dry for they will not always take it wet, and I prefer feeding it dry to feeding it wet, but it is more easily fed wet than dry. As soon as the calves begin to take a little bit of this oil meal dry, or corn or flax seed meal, then some finely ground oats may be added. Care should be taken at all times not to give more than the calf will take, or rather not to give more than the calf will keep on taking, not to overdo the business. It is absolutely necessary that the calf be kept going on about as fast as he can go, but keep him wanting a little bit more of this kind of feed, oats, ground flaxseed, oil meal or corn, and the greater the variety, the greater are the chances of success. We have fed different kinds of meal at this time, and we have found where the calves were confined to one or two kinds of meal or a mixture of one or two they do not do nearly so well as where they have five or six different kinds of meal all mixed together. The skim milk is continued until the calf is about four months old, and then it is gradually decreased, and the calves are expected to eat more grass and hay during the last two months they are getting any skim milk. A certain amount of green feed is necessary from the first, a little bit of ensilage or roots or grass does them good, and sometimes at night they are put out on the pasture but never during the day time. Particularly should day pasturing be avoided if the weather should be bright; strong, hot sunlight seems to hurt them, for they do not do nearly so well. The cooler the quarters in which they are kept in the summer time the greater are the chances of success.

The next two months, from the time the calf is four months until it is six months, it lives almost entirely upon green feed and the meal I have described. The green feed consists of ensilage, roots, a little bit of chopped grass or long grass, and some dry clover hay. We have found a little bit of dry clover hay a most desirable addition to the ration.

From the time the calf is six months old until a year old, the feeding is a very simple matter and consists in giving them practically all the roots and

ensilage they will eat with a fair proportion of mixed meals. The greater the variety of meals given to them, the greater is the chance of making a success of the feeding operation.

From the time the calf is a year old until a year and a half old, or the second summer, is a critical period. It is the most critical period in the life of the animal destined for early beef. We have tried feeding them inside and tried feeding them outside the second summer, and I think the chances are just about even, which ever way it is done. During the last two or three years we have fed them outside because it is not so expensive, and when they come in early in the fall they are in good shape for putting on lots of gain very rapidly. Where we fed them inside we found that a certain proportion of green feed was absolutely necessary in the ration in any case. Ensilage would take the place of green feed to a certain extent, but it did not seem to have the same flesh-producing effect as the green grass. Of all the grass mixtures we have tried we consider that oats and vetches with a little bit of clover or alfalfa hay are the most suitable. Timothy was not very good; pure oats did not seem to do very well, but the mixture I have mentioned, oats, vetches and alfalfa hay gave us, in every case, good results. July and August is a critical period. We have found that in nearly every case, wherever and however we fed, they would be at a standstill during at least one of these months; therefore during the last two years we have fed them outside. We turned them out about the first of June and supplemented the grass with a little bit of meal, and were of course, careful to keep them on good pasture. We gradually dropped the meal and allowed them to have nothing but grass for the months of July and August. Under these conditions we found that we were not able to make any gain at all in July, but in August they made gains at the rate of two lbs. per day, and so, on the average, did quite as well as when on full meal ration, confined in the stables, and possibly better.

In September we take them off the grass in part, and in addition to the grass we feed ensilage and roots and a certain portion of meal, and the gains continue at the old rate. In October they are put on the regular ration. We have found it necessary for 18 months old steers, fed as described up to that age, to give about 1-2 pound of meal up to 100 lbs. in weight. Then during the fall months and from Christmas until they are sold, it is generally necessary to go gradually up to nearly a pound of meal to 100 lbs. live weight of the animal. The actual weight of the animal at this time will depend of course, upon the excess of the feeding operations during the first year and a half. We expect them to weigh at from 20 to 24 months old, from 1,100 to 1,400 pounds. At the present time, March 1st, we have steer calves at the Experimental Farm that weight about 700 lbs., April and May steers. They never got any whole milk, and never got any large amount of meal, but they kept going right along. We have steers that will be two years old the first of May, that now weigh from 1,150 to 1,200 lbs., and these steers we expect to sell in a little while; they are now ready for the block. They are not quite as heavy as is demanded for the best export trade, but they are certainly away ahead of the average butchers' stuff, and we have been able some years to get as high as 6 cents per pound live weight. The profits as you see, are very considerable when you remember that the first gains were made for from 2 to 3 cents per pound; the next gains were made from 4 to 5 cents, and the last gain from 5 to 7 cents. The greatest gains are made in the first year. We expect steers to put on two pounds a day from the start, until they are ready for the block. If they do not make about 700 pounds a year, then there is something wrong, especially is this true for the first year.

Now as to the profit of feeding steers in this way as compared with feeding them in the old way, when they are ready for the block at three or four years old. We have fed steers in the slow way in comparison with these, and we have found that the steers fed in the slow way have consumed a great deal more rough feed than did the steers fed according to the baby beef producing method. The difference in the amounts of meal fed, is also great, but it is in favor of the long feeding process, because after the time the animal is 6 months old, there is no more meal fed until it is two and a half years old, so that it gets meal for about one year only, but, of course, the meal ration during the last six months is considerably greater than would be the amount of meal fed during the last six months under the baby beef process. The amount of meal fed to the animal put on the market at two years old would be from 100 per cent. to 150 per cent. greater than the amount of feed fed to the animal put on the market at three years old. So you see the farmer, who has a considerable amount of roughage, might find it to be to his advantage to feed on the old plan. But the amount of ensilage and roots, and the amount of hay and straw that the steer will eat in three years is much greater than he will eat under the two year plan; we find it to be from 25 to 50 per cent. greater to say nothing of pasture. So the farmer must always consider what material he has under his control. It is, of course, usually advisable for the farmer to feed all the roughness he can, because he can produce that more cheaply. We have kept track of the feed consumed by the animals fed in the two ways, and have found that where animals fed in the baby beef method, the cost of production, including the cost of the animal, was about $50; where as when they were fed under the old process the cost of production, the finished steer was about $75. We sold the steers that were two years old for $75 a piece, thus making from $20 to $25 over and above the cost of feed, but the animals that were kept for three years cost us something like $5 more to feed than we got for them. These were animals of similar breed and fed feeds charged at similar prices; the only difference being that the animals that were fed for three years took most of their feed in rough material, hay, straw, ensilage, roots and pasture, whereas the others took most of their feed in the form of meal, and therefore the farmer who has to buy all the meal he uses, but grows all his coarse fodder and has cheap pasture land, it is probable that the feeding of baby beef would not be the more profitable method in the long run. Here is something, however, which seems to me to be worthy of our consideration. The great majority of the steers put on the export market in this district are four years old. Now if at three years old the steers cost anywhere from $70 to $80, you will see that at four year old he must cost something more not only on account of the year longer on hand, but also because as steers get older we find it is harder to put on 100 lbs. of increase. It is more difficult to put on flesh and fat at that age than it is at three years old, and much more difficult than at two years old. Therefore, it is clear to my mind that if we are going to make a success of feeding, we must go to work and get the steers off in three years' time at the latest.

The calf or beef animal, that is neglected during the first six months of its life, is nearly always neglected during the second six months, and at one year old looks as if it might be four months old as far as size goes. I have seen hundreds and hundreds of steers in this very County of Carleton, that looked as if they were only five or six months old when they were actually a year old, and they should have been knocked in the head because that kind of beef is far from profitable and is not creditable to this country. We want to get out of the habit of producing such animals, or rather of feeding them

in such a way. One of the best things that could be done by these Fat Stock shows would be the discouraging of the production of this kind of stuff. I know that I am speaking not only for the benefit of the butcher and the exporter, but for the benefit of the farmer. Beef of that kind is always made at a loss; it is sold for $35 or $40 a head, after having cost from $50 to $60 a head to produce it. We have most excellent stock in this country if we would make use of it. There is no doubt that beef animals in this country can be made ready for the block at the age of three years and younger, better at the age of two years and a half. The spring calf should be ready for the market two falls later. Thirty months is quite old enough for the average export animal, and lots of animals might be ready for the export trade at two years old, and they are the ones on which the money may be made.

A Member: Does that $50 include anything for the work?

Mr. Grisdale: No, that is feed alone.

Q. Do you leave the calves out all night?

A. If the nights are nice I have no objection to leaving them out all night in August and September.

Q. Can you profitably raise them on the cows?

A. No; supposing you undertook to raise these calves on the cows you would not get anything from the cow but the calf. Your calf at 6 months old will be worth from $15 to $20 and that is the whole return you would get from our cow. You cannot keep a cow for $20 a year therefore I claim there is no money in that plan of raising calves.

Q. On decreasing the milk do you add water to it?

A. No; we give them water to drink at all times; probably it would be a good plan to add water but we have never taken the trouble to do so.

Q. Does it require pure-bred stock?

A. No; it would not be necessary to have pure-bred dams, but I think it would be absolutely necessary to have a pure-bred sire.

Q. Do you warm the milk or feed it cold?

A. Feed it cold, and I will tell you why. If you vary the temperature of a young animal you are going to have digestive troubles. Again, if you cannot always feed the milk sweet, then always feed it sour, and always feed it cold, and be sure that your pails and troughs are clean. Do not give them 10 lbs. to-day and 12 to-morrow, feed them food of uniform quality and give it to them in uniform quantity at uniform temperature and insist upon absolute cleanliness and regularity and you will be sure to succeed. Do not over-feed and do not under-feed.

Q. Would you feed the milk cold when they are quite young?

A. You might start when about 10 to 15 days old, and I do not see any objection to feeding it cold when they are quite young provided you can succeed in making the calf take the milk slowly. An excellent device for insuring a healthy calf is a calf feeder. Calf feeders are sometimes hard to keep clean but they insure the calf taking the milk slowly and insure thorough digestion.

Q. Why is it necessary not to have the water boiling for the flax seed?

A. Flax seed oil boiled is quite indigestible, unboiled oil or raw oil is quite digestible and that is the reason; boiled oil is paint oil.

Q. Would you always advise cooling the milk?

A. If you cannot always have it warm then cool it, but be sure and always have it at one temperature. Do not have it warm to-day and cold to-morrow. Of course when the calves get to be three or four months old it does not matter quite so much.

Q. Do you not think it is better to feed warm milk from the separator than to feed it cold?

A. Yes, if you can do that right along it is far better and you can get better results, but what I am cautioning you against is feeding it warm to-day and cold to-morrow. Sometimes people separate in the morning only, and the milk that is kept until the evening is quite cold, unless you warm it up, and then you will be feeding the calf warm milk in the morning and cold in the evening.

Q. Can you separate the milk when it is cold?

A. No; you cannot.

Q. Would not it be better now that labor is so high to allow the cow to raise the calves?

A. I just answered that question.

Mr. DAVIDSON: One of our neighbors raised a calf and he sold it for $60, and there was nothing particular about the cow or the calf.

Prof. GRISDALE: Yes; I think the price is particular.

Mr. DAVIDSON: I think if there were a thousand like it in the country they could be sold for $50. This calf weighed 1,000 lbs.

Mr. GRISDALE: That must be a good cow.

Mr. DAVIDSON: Just an ordinary cow.

Mr. GRISDALE: Supposing you had taken her milk and separated it and got the butter and fed the skim milk to the calf you would have got about the same calf.

A MEMBER: The question is paying a man $30 a month to look after the cow.

Mr. GRISDALE: You could have a number of cows.

A MEMBER: In the summer time a calf just runs in the pasture with the cow.

A MEMBER: Do cattle that are shipped out of this country average $60 all round?

Mr. GRISDALE: No, I do not think they do, but I think they could all be sold at that price if we had the right kind. It is the poor stuff that you cannot sell. Baby beef is the kind that will sell and there is no more pleasant work around the farm than growing it. You can see them grow. It is remarkable how they grow, and it is the most interesting work I ever undertook, and there is lots of money in it. Our records for a number of years go to show that you can put on gains for about 3 cents a lb., and if this gentleman about whom Mr. Davidson speaks can get 6 cents a lb., he is making nearly 100 per cent. on his outlay. But, I can take you to lots of people who have three years old steers weighing 1,000 lbs., and they cannot get $30 for them. They are losing about 50 per cent. on their outlay.

A MEMBER: I have a neighbor who raised four last year and sold them for $17, when four months old; he allowed them to run with the cows.

Mr. GRISDALE: There is nothing to prevent a dairy farmer in this district making lots of money out of beef if he would feed it the way I have described.

A MEMBER: Is the dairy cow a beef producing cow?

Mr. GRISDALE: That is a vexed question.

A MEMBER: Does it pay to milk a Durham cow?

Mr. GRISDALE: We have Durham cows giving 8,000 to 9,000 lbs. a year, but of course, you cannot get on without labor. Dairy cows will pay you about 2 cents for each one cent's worth of feed you give them, while good beef animals will not pay you more than one cent for each one cent's

worth of feed. Good dairy cattle will pay you $2 for $1 worth of feed and a beef animal is not likely to pay you anything like that.

A Member: If you let the calf run with the cow she will make you $45 and would not that pay you better where you had no labor?

Mr. Grisdale: How often can you do that? It costs us for our Shorthorns about $42 a head to keep them a year. You have to feed that calf nearly six months and it will cost you about $12 for the six months.

A Member: Let it suck nine months.

Mr. Grisdale: You would have to feed it at least three months. If you have the labor, dairying will be more profitable; if you have not the labor then beef is probably the more advantageous.

Mr. Miller: When you say the export steers average 4 to 4 1-2 years what do you mean by that?

Mr. Grisdale: I mean this district. I do not mean this country. I suppose they average 3 1-2 years.

A Member: They would not go over 3.

Mr. Grisdale: I fear they would pass that age by quite a bit.

The Chairman: We ought to let one or two things brought up here to-day soak into our minds. If we are going to raise beef, let us get it off our hands just as soon as we can, and we will make the greatest profit. If it is true that we have been feeding our stock one year and a half longer than it is necessary then we have simply been working for nothing and paying our own board, and if we can prove it is profitable to feed this stuff and get it off in two years we should not wait three or four or five years before we start to do that sort of thing. If you are so hampered for hired help that you have to go out of the dairy business, then go into the beef business, and go into it right.

We have men here from the west who have dropped dairying and have gone into beef, and have made a success of it, and we have an opportunity of learning from them as to how they did it.

HOW TO IMPROVE THE QUALITY OF OUR EXPORT CATTLE.

By Robert Miller, Stouffville.

The subject Mr. Grisdale has discussed this afternoon, and the subject alloted to me have more or less run into the same groove, and I will try not to repeat what Professor Grisdale has said but say something to you along different lines.

In order to improve the export cattle from this country we must begin at the beginning, if we are going to produce cattle that will pay to export we must abolish the dairy cow for breeding the young cattle from. There are four different breeds of beef cattle in this country, the Shorthorns, the Herefords, the Polled Angus and the Galloways. I am a Shorthorn breeder, and I can say to you there is a very little difference in these breeds if you pick out a good specimen from any one of them. A good Shorthorn resembles a first class Hereford very much, and there is not very much difference between a first prize Hereford and the first prize Polled Angus. I think perhaps there is a good deal of difference between these breeds and the best Galloways, because the Galloways are naturally a thiner fleshed cattle than the others. If you are going to export cattle to Great Britain you must first carefully choose your breed and remember that there is a great deal of difference in the individuals in any particular breed, there are good Shorthorns and a lot of bad ones. Good Herefords and a large percentage of bad

ones and it is so in all breeds. You must make up your mind what kind of cattle are going to be the best for you, those that will come to maturity the earliest and bring the best price when you put them on the market. If you like a uniform color, white faces with long horns choose a Hereford. If you are averse to horns then choose the Polled Angus, but if you like a Shorthorn then choose a Shorthorn. If you have decided which breed you are going to stand by do not be easily turned aside and change your mind every time some person asks you to. If you are going to produce the baby beef that Professor Grisdale has spoken of, and I agree with him that it is the most profitable beef to produce, then you want to select shortlegged cattle. You must select cattle with deep bodies that come near the ground. You must select you bulls and heifers with wide strong ribs good around the heart, full through the chest and they must stand with their legs spread right out. I heard the most successful feeder in the United States say at a meeting something like this, that the one point that he would lay down to guide in selecting a foundation for a herd was to select cattle that would make two tracks as they walked up through the grass fields. That is rather an exaggeration, but I can assure you that you do not want to select cattle that knock their feet together both trying to get into the same track. You want cattle that will make a wide track, you must select cattle that are naturally thick in their flesh. There are some cattle that it is absolutely impossible to keep thin. I have known a bull used 10 years in Scotland and he was never known to get an animal that could be kept thin in flesh. If a man had a herd like that he could always do well with them, they are always ready for sale and I can assure you that is the kind of cattle to have.

Then we want cattle with medium bone. If the bone is too fine they will not grow to weigh enough and if too course they will go too much to bone. We want cattle that will mature to a good profitable weight because we have to pay so much per head in freight to take these cattle across the sea and that means that we have to pay the same freight on a small animal as a large one so we want a reasonable large animal to ship to the markets of Great Britain.

Always select an animal with plenty of hair, that shows that you have a thrifty animal and a strong animal. Hair is a sure indication that there is a good class of flesh under it, for instance, you never see a coat of mossy hair on an animal that has tough gristly beef.

You should be sure to get a uniformity in your cattle, because that is a splendid thing when you go to show them to a buyer, for the buyer knows that if he had a shipment of a uniform type he can get the best price for them. So much for the selection of the foundation stock, and after you have selected your males and your females in the manner I have described then you want to feed generously from the day they are born. Whether it i better to feed them skim milk or feed them new milk that is a question for you to decide, but, in any case you want to be generous with your feed. It is a pleasant thing to feed young cattle and to know they are just as comfortable as we are ourselves. If we allow an animal to go to bed hungry that animal will not improve any that day or the day following. For each time it stands still and does not put on growth, there is a change in the flesh and in the fat. The animal that is going to produce the best flesh, the juiciest and best meat must be kept growing gradually from the day it is born until put on the block. When I say feed generously I do not mean that you should feed a lot of pea-meal and chopped oats and corn-meal and oil-cake. We find the less grain we give our young animals the better it is for them. I do not give my calves any grain for nearly six months from the beginning because I know it injures them physically and they do not

put on the amount of flesh that they should. As soon as the calves will eat give them plenty of turnips. Do not give them ensilage while giving them milk. I had a calf that died from the effects of giving it ensilage with new milk, because the ensilage curdled the milk in the stomach. I do not believe in feeding a calf grain when it is getting new milk, its delicate stomach is not adapted to its digestion.

I do not believe we will ever breed cattle successfully on skim milk. I am not a believer in that and I do not advocate it. We are too apt to feed our young cattle fairly well in the winter and then to put them in a field and let them shift for themselves in the summer and that cannot be done profitably, we want to be as careful about providing for our animals in the summer and give them plenty of nourishing feed as we do in the winter time. I do not believe it is a paying investment to feed them grain when they are on the grass but I believe we should have clover to add to the pasture and feed it in the stables and we should have oats and tares and if you are keeping dairy cows it is more important to do that than it is to feed it to the young cattle you are preparing for the export market.

We should have some rape for the latter part of the season. Every farmer should have a field of alfalfa that you could always go to and cut something green, from the early part of the season until the snow comes in the fall. I have had some experience in cutting alfalfa and putting it in the silo in the summer time. There was a big crop to cut it was raining all the time I started cutting it in the morning and filled the silo before night and it was the best feed I ever had to give to my cows, and it lasted me until the corn was cut and put in the silo. I believe 20 lbs. is as much as we should feed to any animal and we should have a good supplement of turnips and mangolds. You can have mangolds through the mouths of July and August and September if you want to. I think the mistake is made in depending too much on hay to feed to cattle and horses I think we should feed more straw, I believe for young growing animals good straw is better than fair hay I believe we should always have some good oat straw I also think it is good for working horses.

I have heard it said in England that the beef raised in Canada was not as good as the beef raised in England and I am sorry to have to admit that there is a tremendous lot of truth in it, but, if we would take our cattle and breed them the way I have described and breed with the object of having early maturing cattle and if we feed them so that they will never know what want is from the time they are born until ready to kill, and finish them up the last two months with hay and plenty of turnips and plenty of meal and a little oil cake, I do not think you can have better beef in Scotland or England. There is something in the climate in England that gives them a better chance, a man has more blood in his body over there and they say the flesh of an animal is more juicy. They never finish their animals over there on grass alone.

Mr. Grisdale: How do they finish their animals?

Mr. Miller: In the summer they finish them in the fields and give them a supplimentary feed of corn and oil-cake. The men in this country try to get their cattle ready for export about the 1st. of May and that is one of the weaknesses in our plan, the result is that a great many cattle are sent over just about that time and the buyers in England see these cattle arriving and they send a man over here to buy some of them and he can get a supply for a month or six weeks in the spring but after that time the supply of good cattle begins to run out and the men withdraw from our markets because they cannot get a regular supply. I know one of the best buyers who came over here and he told me he was going to ship 100 cattle a week

I told him I thought it would be a good thing for our market, and he kept it up for five or six weeks and then the supply ran out then he went to Chicago and he has been buying there ever since that time.

A MEMBER: You said you raised your calves on new milk do you allow them to suck the cows.

Mr. MILLER: I have nothing but pure-bred cattle.

A MEMBER: Will they raise a calf the next year if you let the calf suck.

Mr. MILLER: It takes longer for the cow to come round if the calf is running with her.

Q. How do you sow the alfalfa?

Mr. MILLER: We find it will grow in almost any kind of soil if it is well under-drained and no surface water allowed to lie on it. It is always advisable to give a good coating of manure, and select a field naturally well drained.

A MEMBER: Is not it better to seed it with barley?

Mr. MILLER: I think you can do that but it is better to send it alone.

Q. Will it grow more than one year?

A. Yes, I know plenty of fields where it has been grown for 25 years.

A MEMBER: How do you get this alfalfa out of the ground. I had some one year, and I had to cut around with a good sharp axe to cut it out, we never could cut it out with the plow.

Mr. MILLER: Get a good strong man to use the plow, the roots go down 6 and 8 feet and they certainly need a lot of cutting.

Q. Will one plowing destroy them?

A. Yes.

PROF. GRISDALE: We have published a bulletin on the subject of alfalfa which will give you all the information known about it at the present time, and will be glad to send it to any of you who are interested in the subject.

CANADIAN BEEF ON THE BRITISH MARKET.

BY G. E. DAY, PROFESSOR OF ANIMAL HUSBANDRY, O. A. C., GUELPH.

No doubt every one here is aware of the fact that our cattle are shipped alive to Great Britain, are slaughtered at the port of entry, and the beef distributed to various points where it may be required. So far as I could discover, there is no clear line of demarcation between Canadian beef and any other kind of beef placed on the market in the same form. Scotch beef, however, has a very high reputation, and I think there is little doubt that a good deal of the best Canadian beef is frequently sold as Scotch beef when it comes up to a high enough grade to pass for such. Owing to the fact that a good deal of our beef is too thin, there is a tendency to class the poorer quality of beef as Canadian beef. The question of what the British market requires has already been pretty fully dealt with in preceding discussions, but I would like to point out that with the consumer in Great Britain it is not a question of who fed the beef, or whether it is Canadian, American, Scotch, or any other nationality, so long as the quality is what he requires. If the quality is right, it will sell for a good price, but if the quality is low, the price will be correspondingly low. We must realize the fact that our beef must sell on its merits and that the matter of sentiment does not enter into the beef trade. It is all well enough for us to pat ourselves

on the back and talk about what great people we are and what a great country we have. We certainly have a great country and we believe in its future; but, at the same time, we have a good deal to learn in regard to what other countries are doing, and we should be anxious to find out where we are making mistakes and why we are falling short of what we might accomplish in the British market. The sooner we make an honest effort to discover our weak points, the sooner will we attain the position which we would like to occupy.

It seems to me that we are laboring under several great disadvantages, and I am afraid that the remedy is not forthcoming in the immediate future. One of the first of these drawbacks is our method of marketing our cattle. In many of the large beef producing districts the cattle are frequently sold as early as January and February for May and June delivery. The man who buys these cattle buys them before they are finished, and he trusts to the feeder to finish the cattle properly. They are sold at a certain price per pound and the feeder, after he has made his sale, especially if he has sold them a little too cheaply, is apt to lose interest in the cattle, and is not particularly anxious to finish them to the degree which the British market demands. The result of this is that we send forward a great many unfinished cattle, and it seems difficult to bring home to the farmer just what he and the country at large are losing through this condition of affairs. In the United States they have large marketing centres like Chicago, Kansas City, Omaha, etc., where a large proportion of the cattle are marketed directly by the feeders, who very soon learn the class of cattle they must have in order to secure the top price. In addition to this, the large packing houses, which exist in many American cities, are in a position to handle the beef to better advantage than the shipper of live animals in this country. The American packer, with his immense home and foreign market, is able to select his stock and cater to the demands of the various markets; whereas all our stuff, good, bad, or indifferent, must go alive to Liverpool and be slaughtered as soon as it lands. It is true that some of our beef is of first-class quality, but there is not enough of this grade to give a high reputation to Canadian beef as a whole.

As an instance of the educative value of home markets, I might tell you of a case which actually happened in the State of Iowa. A certain feeder had a bunch of steers which he wished to market. He believed they were finished, so he sent them to a commission man in Chicago to be sold, and at the same time sent along an order to another commission man to buy him a load of feeders to take their place. When he got his load of feeders he found he had the very same cattle he had sent up to Chicago to be sold, and he paid a little more for them as feeders than he got for them. This man learned a lesson he would not soon forget, and it is a lesson that a great many of the farmers in this country have yet to learn. Unfortunately, we have a great many feeders who do not know what a finished animal looks like. I am glad to say we have a number of as good feeders as there are in any country in the world, but, unfortunately, we have not enough of them to to keep up the reputation of Canadian beef, and as a result these feeders are not getting as much for their cattle as they should receive. It is very similar to the trade in bacon hogs. The man who is producing the best article is suffering through the slipshod work of his careless fellow farmers.

As already intimated, the second great drawback under which we labor is the absence of these large abattoirs where our cattle can be slaughtered at home and the beef sent to those markets to which it is best suited. If it should ever happen that, through disease or some other cause, we should not be allowed to send our live animals to Great Britain at all, we should

certainly be placed in a very bad position. It is true that the farmers of the United States are not inclined to look upon the packing houses as public benefactors, and yet it cannot be denied that the beef industry of the United States would not be so profitable to the farmer were it not for the packing houses. When or how we shall have large abattoirs established in Canada, it is impossible for me to say. I presume it will have to be a matter of development. As the conditions warrant, it is quite probable that capital will be forthcoming to provide the necessary equipment, and until then I do not know but what we shall have to bide our time.

As this question has already been discussed, I scarcely think it wise to dwell longer upon it. I was very much struck with what Mr. Miller said regarding the feeding of young calves, especially with his statement that he would not feed grain to calves under six months old. We have here a number of gentlemen who are noted breeders and feeders of cattle and I would like to ask their experience regarding this matter.

Mr. W. H. Taylor, Middlesex: I do not feed grain until they are three or four months old.

Mr. John Davidson, Ashburn: We give them grain as soon as they will eat.

Mr. N. F. Wilson, M.P.: Calves may be fed grain as young as you like.

Mr. A. W. Smith, Maple Lodge: In the case of pure-bred calves. I would begin feeding as soon as the calf will take the feed. I use oats and bran largely. We get better results than we would by feeding milk alone for six months, but I am strongly with Mr. Miller in feeding a large quantity of roots and then the calf will not take so much grain.

Mr. John Gardhouse, Highfield: We usually feed them ground oats and mangels. We believe in giving them what clover hay they will eat and a fair share of mangels, with probably a little oil-cake.

Mr. Sangster: A calf at three weeks old will begin to nibble clover hay. I do not always feed meal and roots.

Prof. Day: Our own practice is to feed oats as soon as the calves will eat, and gradually introduce a little oil cake and bran. We also give them what clover hay and roots they will take.

Mr. Miller: There are two men above all others in the whole world recognized as the most successful feeders of calves—Mr. Duthie and Mr. Marr. It has been my custom whenever I have been in Scotland to go through their fields where the calves are running with their mothers, because they do not keep the calves inside under any circumstances, but let them run with their mothers, and they make sure that their mothers are good milkers. Mr. Duthie told me that one of his hired men had made a great mistake the year before. There is a great deal of rivalry between Mr. Duthie and Mr. Marr, and each one is anxious to have his calves come out ahead. Mr. Duthie's man commenced feeding oil cake to the calves several weeks earlier than usual, and at the time of the sale these calves which were fed cake were not so good as those that did not get any. The calves that are let run with their mothers and get no grain will be better calves at the end of October, if fed generously at that time, than those fed grain all the summer the same amount of milk. In addition to this, Mr. Robbins, the most successful exhibitor in the United States, does not allow his calves to eat any grain until a good age, and when he does feed them grain he gives them whole grain. I can assure you that if you want to give your calves grain when they are getting a good supply of fresh milk, you should give them whole grain in preference to ground grain.

A Member: Why is whole grain preferable to ground grain.

A. If you feed ground grain in conection with milk it will have a bad effect.

Q. You would not feed whole grain except oats?

A. The best calves we ever raised were fed on oats. In the United States they feed whole corn.

Mr. A. W. Smith: I do not think we are so much at variance as one might suppose. Whenever the calf gets all the milk it will take, it will eat very little grain, and I do not think there is any food equal to the milk.

A Member: If you send the milk to the factory how would you feed the calves?

Mr. Miller: I do not know of any good way of feeding the calf without milk, and I would not like to be the calf.

Prof. Day: I think it is hardly fair to compare Scotch methods with Canadian methods when the conditions are so different. I was in Scotland last July, and wore a light overcoat most of the time and did not feel too warm. The calves were out on the pasture with the cows, but there was no scorching sun such as we have here, and there were no flies bothering them. During the heated season in this country, especially when flies are so troublesome, I prefer to keep the calves in during the day at least, giving them a roomy, airy shed where they can take plenty of exercise and fresh air. This discussion may prompt some of us to do some experimenting in this matter, and I am glad that it has occurred.

The Chairman: We have had a very hearty discussion, much better than we usually get. It is quite evident that we spend money and time on feeding cattle for the markets, and then some of us do not know a well finished animal, and it seems to me it behooves us as farmers to get to some place where we can get information that will help us to tell a finished animal. We have a place at the Ontario Agricultural College where your boys can learn all these points. It used to be said that the boys would not go back to the farm, but now it is changed that the farmers are on top again. I think it would pay every farmer to send at least one of his sons to the Agricultural College so that they can learn all about the most advanced methods of agriculture.

The evening session was held in the lecture room of the office of the Live Stock Commissioner and was largely attended. The Chair was occupied by Mr. G. C. Creelman, President of the Ontario Agricultural College, and after bringing the meeting to order, he called upon Mr. G. H. Clarke, Seed Commissioner, of Ottawa, to give an address.

THE STOCKMEN'S INTEREST IN GOOD SEED.

By G. H. Clarke, Chief of Seed Division, Ottawa.

As announced, I am to address you on the stockmen's interest in good seed. It is not quite clear to me in what way the stockmen's interests differ from the interests of the ordinary farmer, unless it be that their experience in the breeding, feeding and caring for live stock teaches them some of the benefits that are to be derived from the careful growing and selection as applied to seed grain.

We are sometimes asked what is meant when we speak of good seed. If we think of the root crop seeds, we would, perhaps only consider the power of the seed to produce a large yield of crop of good quality, but when we come to cereal grains, grass and clover seeds we have also to consider the

impurities and I have no doubt that, from the discussions that have taken place during the last two years on the impurities in grass and clover seeds, you have heard a great deal about the impurities in seeds that are sold in different parts of Canada. In the cereal grains, oats, wheat and barley, we find a different class of impurities to what we find in the smaller seeds such as grass and clover seeds.

With the larger grains we find Wild Oats, Mustard, Wild Radish, Purple Cockle, Bindweed, Wild Buckwheat and many others. In the grass and clover seed we find White Cockle, Dock, Thistles, Daisy, False Flax and others of the smaller weed seeds.

It seems but a short time since I was following weeds at the business end of the hoe, and like most lazy boys I used to wonder where they all came from. During the past six years I have been making a more careful study as to where these weeds came from, and we have been able to get a good deal of information on that point. We have been able to trace a great many of the weeds to their original source. Most of the weeds that come to us come from foreign countries. A great many of them come from Europe. Very few of them come from these countries mixed with other seeds. They come to us very often in packing material. For instance, a great many farmers go into the city and get a packing box to use as a feed box, and when they take that box away they are required to take the straw or other packing material that is in it. I have seen that packing material dumped in the farmyard. The next year the farmyard manure would be put out in the fields and in those fields there would appear just a few more weeds that were never there before. Following in that field a crop of clover may be grown for seed and in time that seed will be distributed in every province of the Dominion. After they become thus distributed, some careless farmers let these new weeds go to seed and spread all over the locality. Any of you who live on a farm, parts of which are yearly flooded with water, know how difficult it is to cope with the weeds that are brought down with the freshets.

I think, perhaps, our railways have had much to do with the introduction of weeds into the new districts. However, we must have railways, but I think a great deal can be done to check the distribution of weeds by transportation companies, and also by threshing machines. Threshing machines that go from farm to farm are seldom properly cleaned. I would advise farmers to insist that the threshing machines be thoroughly cleaned before they are allowed to come on their farm. Another trouble is, that at the busy season of threshing, the work is done far too rapidly with the result that the finer seeds of weeds are carried out with the straw and finally get into the manure. Again where screenings are mixed with coarse grains for meal they are frequently not ground sufficiently fine to kill all these small weed seeds. It is not advisable to feed screenings which contain large quantities of mustard seed. If you get only a small quantity of worm seed mustard in meal you could not get a hog to eat it. If you would taste a little of such meal you would better appreciate the objection the hog has to it. The seed of this specie of mustard is exceedingly pungent to the taste, and a person can hardly stand the odor from the steam when it is being boiled.

From the work we have done here during the past three years we have come to the conclusion that these, to some extent uncontrollable, sources of the spread of weeds, are inconsiderable compared with the weed seeds that are disseminated in grass and clover seeds and cereal grains. If any of you care to come to the seed Laboratory, I can very easily demonstrate to you how noxious weeds are being spread over the country with seeds such as I am showing you here to-night. Since 1902 we have made a collection every

year of from 500 to 700 samples of grass and clover seeds obtained by actual purchase from local seed merchants in all parts of the Dominion. These are only a few samples that have been picked out of the very worst that were received last year. The sample I am looking at now contains twenty different species of weed seeds.

Here is a sample of Red Clover seed that is only 78 1-4 per cent. pure and contains 42,705 weed seeds per lb. as estimated from a ten gram lot.

A bill was recently introduced in Parliament by the Honourable the Minister of Agriculture with the object of obtaining a law that would supplement the educational work that has been done during the past two years through the medium of Farmers' Institutes and newspapers and to bring about a law that would help to provide the farmers with the means of obtaining a quality of seed that they could depend upon. I want to say something about what this bill means.

Clause 3.—"*No person shall sell or offer, expose or have in his possession for sale for the purpose of seeding, any seeds of cereals, grasses, clovers, or forage plants unless they are free from any seeds of the following weeds: Wild Mustard, or Charlock, Tumbling Mustard, Hare's-ear Mustard, Ball Mustard, Field Pennycress, or Stinkweed, Wild Oats, Bindweed, Perennial Sow Thistle, Ragweed, Great Ragweed, Purple Cockle, Cow Cockle, Orange Hawkweed or Paint Brush, Ergot of Rye, unless each and every receptacle, package sack or bag containing such seeds, or a label securely attached thereto, is marked in a plain and indelible manner.*

(a) with the full name and address of the seller.

(b) with the name of the kind or kinds of seed.

(c) with the common name or names of the forenamed weeds, the seeds of which are present in the seed sold or offered, exposed or had in possession for sale."

Some of these weeds have recently been brought in by emigrants now located in the West. Of these new weeds, some have been found in Ontario during this last five months. You will know a great deal more about them in the future. There are a great many more weeds to come, and some of them much worse than those we now have.

2. "*The provisions contained in this section shall not apply to the sale of seed that is grown, sold or delivered by any farmer on his own premises, for seeding by the purchaser himself, unless the purchaser of the said seed obtains from the seller at the time of the sale thereof a certificate that the said seed is supplied to him subject to the provisions of this Act.*"

I think you will understand pretty well what that clause means. There is another clause referring to Timothy, Red Clover, and Alsike, as follows:

Clause 4.—"*No person shall sell, or offer, expose or have in his possession for sale, any seeds of timothy, red clover, alsike or any mixture containing the said seeds, in or from any receptacle, package sack or bag upon which is marked "No. 1" or any other designation which represents such seeds as of first quality, unless they are free from the seeds of weeds named in Section 3 of this Act, and are also free from the seeds of White Cockle, Night-Flowering Catch Fly, False Flax, Canada Thistle, Ox-eye Daisy, Curled Dock, Blue Weed, Ribgrass, Chicory, and contain out of every one hundred seeds not less than ninety-nine seeds of the kind or kinds represented, or seeds of other useful and harmless grasses and clovers, of which ninety-nine seeds ninety must be germinable.*

That clause means that if any seed vendor or any farmer who is selling timothy, alsike and red clover seed, marks a package or bag "No. 1" his representation must mean something and it must come up to a certain stand-

ard of purity. The Standard is absolutely optional with any person, but if the vendor choses to represent his goods as of first-class quality, they must be up to the standard named in the bill.

Clause 6 simply fixes a minimum standard, below which no seed will be allowed to be sold for seeding in Canada. That minimum standard is fixed to prevent the sale of such material as we have here, which is in reality the screenings or cleanings from seed that has been exported. I have no doubt that most of you are aware that Ontario is a very large producer of red clover and alsike seed. The Toronto market virtually controls the world's prices for alsike seed. Out of the total quantity that our wholesale seedsmen are able to get from farmers, they tell us that they are able to get only 85 or 90 per cent. that they are able to fit up sufficiently good for export. That seed is exported to England, Germany, France and other countries where they have a guarantee system and where seedsmen cannot retail seeds of inferior quality.

With most of the cereal grains the farmer can judge from the appearance of the seed as to its real value, but with the smaller seeds red clover, alsike and timothy, it is very difficult for anyone to judge, unless he be an expert. I want to refer now to what we have done in the way of seed fairs.

A Member: Are any of these bills to be distributed?

Mr. Clarke: As soon as the bill has passed the Senate, we expect to have it re-printed with full explanations and instructions as to taking samples, and a large number of these will be printed for general distribution. We have a mailing list of about 50,000 farmers and in addition any person who applies for a copy of the bill will obtain one.

During the last two years we have undertaken to organize seed fairs in places where they had not been held before. We started one in Prince Edward Island and one in Nova Scotia, two in New Brunswick and one in Quebec, and since they were started they have increased in number and usefulness until this year we have given assistance with 13 seed fairs. Those of you who have been out to the Exhibition may have some idea of the object of these seed fairs. I am well pleased with the improvement that has been made over last year. I believe the seed department of the Ottawa Winter Fair will be a great benefit to the people of Eastern Ontario, and if the management will continue with the seed department, I anticipate that it will grow to be one of the most important departments of the Fair and one of the most useful ones for Eastern Ontario. The funds for the prizes awarded in the seed department were obtained as grants from the County of Carleton, and from private individuals. I attribute the success of the seed department to the efforts of some gentlemen who have used their influence and worked hard to make it a success. I wish to refer more particularly to Mr. Geo. Boyce who has shown more interest than any other person in helping the movement along.

I also wish to speak of what is being done in connection with the Canadian Seed Growers' Association that was started in 1900. The Macdonald Seed Grain Competition which was managed by Professor Robertson closed at the end of 1902. During 1903 there was a Seed Growers' Association formed to carry the work over until they could get it on a basis for forming a Canadian Association. The work of 1903 was carried on entirely by the Department of Agriculture. In June, 1904, a general meeting was held of all interested in the previous association and a permanent association was organized and named the "Canadian Seed Growers' Association." I anticipated that it would take five years before we could get that association on

a basis so that it could stand by itself independent of our department. The work of the association is much the same as that of a Live-Stock Association, and I think it is in the interest of all concerned that the association should be managed entirely by its own members and with their own responsible secretary-treasurer. At the present time we have officers connected with the department acting as district superintendent in each district; the Maritime Provinces in one district, Quebec is another, Ontario another and Western Canada is the fourth district. These men make it a point to get the interest and support of every farmer who has a clean farm and who is in a position to grow good clean seed. They get these men to follow a system of growing good clean seed. They get these men to follow a system of growing and selecting seed as outlined by the Association.

We have about twenty-seven members in Ontario and Quebec who are making a specialty of growing seed corn. Heretofore most of our seed corn has come from Nebraska, Illinois and Iowa and has been of types and varieties not well suited for ensilage in Eastern Ontario or Quebec. If we can get farmers to make a specialty of growing seed corn along the northern shore of Lake Ontario, corn that will mature with them will be suitable for ensilage much further north in the Province of Quebec and in Ontario. The northern limit of our corn belt is fifty miles further north than it was fifteen years ago and I am confident that if we can get the seed produced we can extend the corn belt fully 50 miles further north than it now is, and then the farmers in the northern dairy districts will have a fodder crop that will be better for them than any crop they are now growing.

The men who are growing seed corn in Western Ontario now are required to grow but one variety in order to prevent cross fertilization. They start with twenty of the best ears they can get. They plant each row with a separate ear and when they come to select the seed corn they will first select one or perhaps two out of those twenty rows, and from those one or two rows they will get twenty ears for the next year's seed plot. They can then get enough good corn from the balance of those twenty rows to plant twenty acres, and from that twenty acres they would have considerable high class seed to sell. If we can get a supply of good seed corn grown in Ontario it will mean a great deal to the farmers of Eastern Ontario who have so much trouble in getting reliable seed for ensilage corn. There is very little corn in the Province of Ontario this year on account of the frost. A mile away from the north shore of Lake Erie there is very little corn that will germinate and I have very good information that the seed corn that is coming from the United States, except from a few districts, is even worse than the bulk of the Ontario grown seed corn.

I am very glad to have had this opportunity of speaking to you for a short time to-night, and I would like you as live stock men to give what support you can to carrying on the work in connection with the Seed Department of the Winter Fairs, both at Ottawa and Guelph. I believe there is no country in the world where a better quality of seed can be produced than in the Province of Ontario. (Applause).

Mr. CREELMAN: The Province of Ontario has now passed the billion dollar mark. Statistics show us that the farms, the live stock, farm implements and buildings of the Province of Ontario are worth a billion dollars. The annual produce of our farms is valued at five hundred million dollars, and 80 per cent. of this produce is fed to live stock; hence the stockman's interest in good seed. If agriculture is to continue to be the greatest industry in Ontario, and if Ontario is to continue the greatest Province in Canada, and if stock is to continue to be the biggest part of the industry, then we must have good seeds in order to grow big crops.

GEORGE BOYCE, MERIVALE: The programme says that I am to lead in the discussion. Mr. Clark said that he was at the end of the hoe when he was a boy. I am at the end of the hoe still. I am pleased to be a farmer. We have to work very hard, but take it all round it is very healthy, and what are riches compared to health. When we look at what we have to deal with, we find that it is a very important subject. There are five million acres in this Province of Ontario in grain, wheat, oats, barley and peas. The return is something in the neighborhood of one hundred and seventy millions of bushels and the value of that is seventy-five millions of dollars and anything that contributes to such a very large extent to the financial welfare of this country is something that ought to receive very careful consideration, and I think we should use every possible means to bring it to the highest state of perfection.

Three years ago it was announced that a society was to be formed here for the improvement of seed. I have been a farmer all my life, and when I was a young man I used to change seed. It was no trouble in those days to go to your neighbor and change seed, but I find it a different thing now. The country is so over-run with weeds, and I am almost frightened to night when Mr. Clark says there are more weeds to come. When we started to form that association it was almost a failure. *The Ottawa Valley Journal* suggested that we should go on, and we did, and last year we held our fair, and we were very much encouraged. The grain was not as good as it might be. There was a good deal of dirt in it, but I think this year the grain will compare favorably with any you will see. There is quite a demand for improved seed at the present time and quite a number of the exhibitors are selling seed, and if we can get a place to sell our seed we will increase the return of our crops from 5 to 10 per cent. by sowing good seed. I have had from 5 to 15 per cent. of an increase by sowing good seed. Last year I sowed one-half bushel of improved seed, and you would hardly believe how much ground it took for this one half bushel. I told my son to sow it as thin as he possibly could, and he said it just took an acre, so that it was not very thick, the Drills were 14 inches apart. I did not get it in as early as I would liked to have got it in, and I was not able to harrow it, and I wanted to make the best I could of it, so I hoed it twice, and the result was very good. One neighbor, going by said "What is that you have there," and I said "Sugar cane." He said "Did you tell me that is sugar cane?" and I said "Yes," and he told every body it was sugar cane. Before I got it cut, a storm knocked it down, but anyway I got 31 bags off the acre, and I am going to repeat it, and I would advise others to try the same experiment.

A MEMBER: It is your turn to laugh now.

Mr. BOYCE: Yes, I am not going to allow any fellow to laugh at me, if I can help it. I say the seed bill just enacted is a very good thing but it is not strong enough. I do not see why our neighbors should be allowed to sow seed and pollute our farms. Two or three neighbors near me have got wild oats and mustard on their farms. We get little enough returns from the farms now without growing weeds. I have travelled all the way from Cornwall to Windsor on a pleasure trip, and I took a very careful survey of the country, and I came to the conclusion that we are in an unsurpassed agricultural country, and we must have mixed farming, and the more grain you can raise per acre the better it will be. I find there is about thirty million dollars worth of cattle sold every year, and that doesn't compare with our grain which is seventy-five million, and I think we ought to do all in our power to increase the product of our seed and get it as pure as we can.

A MEMBER: How can you get the thirty million dollars' worth of cattle?

Mr. Boyce: Killed and sold, I went to this great New Ontario and in all my rambling in the Province of Ontario, I never travelled fifteen miles of as good country as the Lake Temiskaming. In that road that runs up the White River there was only two gulleys. It was the levelest country I ever saw, and covered with beautiful grass, and the water seemed to be good, and running clear. They are about ten days later than we are here. They had no horses or cows. They had only about ten or fifteen acres of clearings on each farm. I met a man bringing in four or five bags of oats, for seed and it was a shame to see the stuff that was going into that new country. I said to the man "What are you going to do with it? If you sow it you will fill your farm with weeds." He said he could not get any good seed. More than one half of it was just vetches and other weeds. I would not for anything get the like of that into my farm.

We suggested that the Government give us a grant for a seed fair here of $250 for prizes, and I think we ought to get it. We seem to be afraid when we talk to our public men, and we take off our hats now I think we ought to go to these gentlemen and tell them that we want it, not for ourselves but we want it for the benefit of the country. The County of Carleton has given prizes for two years and we cannot ask them for any more. They have put it on a good foundation. They give $5.00 for the first prize, $3.00 for the second $2.00 for the third, and $1.00 for the fourth. If you go into the city, no matter where you go when you come to find out where the leading men come from—the brightest of them. You will find that they came from the farm. (Applause). But we do not send them all, we keep the best at home.

A Member: For seed. (Laughter).

Mr. Boyce: I trust you will all take a great interest in this matter and give it close study, when we consider the great amount of money that is involved in the matter of good seed, we have no idea of the immensity of it.

The chairman say we have no idea what a million dollars is. One gentleman said if you take one million one dollar bills and weigh them, they will weigh nearly a ton. It beats 1900, if it doesn't go 2,000. If we can raise seventy-five million dollars worth of grain, it is worth our while to do it well.

Mr. L. H. Newman: Our worthy friends, Mr. Clarke and Mr. Boyce, have just told us that they have been at the end of the hoe. Now I claim the advantage in having been at both ends. Regarding the question of seed corn I may say that I have had an opportunity, during the past month while at Institute meetings, of examining a great deal of corn, arrangements having been made with Mr. Putnam, the Superintendent, to write the Secretaries of the different Institutes asking the members to bring out corn of different strains that we might discuss them at the meeting. Of the many phases of the corn problem dealt with, the question conducive of greatest interest was that of vitality. A large number of ears were inspected, and a great many of them were found to be very low in vitality. Last spring I went through the province, looking up this question of seed corn, and I examined a great deal of corn both at the seed-houses and on the farms. The result of these investigations was, that we arrived at results which caused us the gravest apprehension as to the final outcome of the corn crop. That these fears were well founded was proven during the summer, when we found field after field sown with Hungarian grass and millet where corn had been planted, the corn having failed to grow and the millet being sown as a substitute. This spring a great deal of our corn is very low in vitality, and if we are not very careful we are going to meet with the same results that were

met with last year. I am therefore going to outline a practical system of testing every ear of corn. It is something which everybody could do and one which ought to appeal to all corn growers when we realize that for every 15 or 20 poor ears of corn discarded, approximately an acre of corn is saved.

The method is simply to take a shallow box and put in it some sand; then take a piece of cotton and rule it off into squares in checkboard fashion, numbering each square consecutively. Put this cloth over the smooth surface of the sand and, having arranged the ears in a row, take from each ear about 6 kernels. placing the kernels from ear No. 1 in square No. 1 and the 6 kernels from ear No. 2 in square No. 2, and so on, until a sample from each ear is placed on the corresponding square. You will get a fair representation by taking one kernel from near the butt, one from the middle, and one from near the tip of each side of each ear. When the kernels are all arranged place over them another cotton cloth and put a little sand over the top of this cloth again: then moisten the whole thing and leave for eight or ten days, after which time the upper cloth may be removed and the kernels examined for germinating capacity. Perhaps in some of the squares the kernels will all be germinated while in others there will be only one or two, and in some again there will not be a single kernel germinated. Thus by following out a system like this, you will be able to trace back and reject the poor ears and you will be astonished to find the great difference that exists between them as represented by the test.

We have enquiries from people all over this province asking where they can get good seed corn, and we invariably make it a point to inform them where they can get it *on the ear* and urge them to *test each ear* as above. If they take this trouble they can get a good stand of corn, otherwise they are running a big risk. I have talked with men across the line who grew as much as 8,000 acres of corn and they test every individual ear of corn in this way and find that the practice pays them immensely.

The Chairman: I am now going to call upon Mr. W. Stanley Spark of Canterbury, England, who will deal with the desirability and possibilities of developing a Canadian Live Stock trade in Argentina. Mr. Spark will also describe that country with special references to live stock. Argentina has become one of the most progressive countries in the world. They are again sending out forty young men to be educated, and the government is paying their expenses. Twenty of them are to go to the Universities of Europe, and twenty are to go to the Universities of North America. The only stipulation being that not more than two of them can go to one institution, except that six of them might be allowed to go to the Ontario Agricultural College, Guelph. (Applause). We expect, therefore, six or these boys in addition to the twenty we have already had from that country. They have their own ships for sending their produce directly from their own home markets to the markets of the old country. They are very energetic, and in many lines they have got ahead of the Americans and Canadians, and this is one of the countries that we have to compete with, and I have now much pleasure in calling upon Mr. Spark to tell us something about it.

POSSIBILITIES OF DEVELOPING A LIVE STOCK TRADE IN ARGENTINA.

By W. S. Spark, Canterbury, England.

So far as the soil of Angentina is concerned, it is the richest country I have ever seen, and I have travelled a very great deal. I have been all over Europe, China, Japan, Austria, New Zealand, and India, and last but not least, Canada, and Argentina takes the prize as regards richness of soil. But with all this richness of soil they have got such a tremendous amount of disease that it hampers them. There is not one large estincia, I believe in the whole of Argentina, that is not affected with foot and mouth disease. The people of Argentina showed me the greatest hospitality, and I would not care to offend them. But I really do not think they go about stamping out these diseases in the right way. They seem to have means of avoiding the proper inspection, that the government desire should take place. I was asked by one of the inspectors of the Board of Agriculture in the old country, whether I thought it would be wise, after seeing what I have seen of Argentina, for England to open its doors to the live cattle coming to be slaughtered at the ports in England, and I said if you want to get foot and mouth disease again, allow them to come in, but if you want to keep free of it never allow them to come in, but open your doors to Canada that is the place to open your doors to. (Applause). I am pleased to state that I got a letter only ten days ago from the president of the Board of Agriculture in the old country saying he was very much obliged for the advice I had given, but with regard to Canada he was sorry to say he could not promise me at the present time that the doors would be opened, and I replied to that, that I thought it would be to the advantage of the old country, and certainly to the great advantage of Canada, and would do very much to unite the Empire if they would open their doors to Canadian live stock.

The great show at Palermo as far as cattle goes is the finest show in the world. I won't say as far as quality goes, because I think you can beat them every time in Canada, but you will be very much astonished when I tell you the number of bulls that were shown at that show. I would like some gentleman in this audience to try and guess how many bulls were shown, Shorthorns and Herefords, very few others.

A Member: 500 would make a good show.

Mr. Spark: There were 3,130. I never saw such a sight in my life, and they were not a very bad lot either. I have with me a photograph of the champion bull. Every one of these bulls has to be sold by auction, and they were all put up. They were not all sold, but the great majority of them were sold. This bull was champion at the show three years ago. He is called Newton Stone, and he was sold at public auction for $34,000, that is paper dollars, and equals $14,960 in gold. I am not a very great judge of cattle myself, but I have learned a great deal since I have been in Canada and in Argentina attending the fairs, and attending Farmer's Institute meetings, and hearing lectures from experts, and from what I can find out, this bull was rather coarse. I was with a New Zealand breeder who is considered a very great judge in his own country, and he quite agreed with me, and yet that bull sold for $14,960 of our money. The average price at the sales would be about $3,000 of our money. That is an enormous price, but you have to run very great risks in sending cattle there, and it becomes a question as to whether it would be advisable to open a trade with them or not. If I were asked at the present time by the government of this country

whether I thought it would be advisable for them to spend money in encouraging a trade with Buenos Ayres in cattle, I would say "No, it would not be worth your while." But if private individuals wish to send cattle there, I would say that the animals must be of the very best quality and absolutely free from disease, because they have to go through a very severe test, and they don't pass them unless they are absolutely clean. But even supposing that should be thought of, do you think, gentlemen, that you can afford to let your best bulls go out of this country. That is a matter for consideration. I should say, you want to keep the best cattle here, and they don't want anything but the very best over there, and therefore it seems doubtful to me whether this trade would be an advantage to this country or not. They are importing an enormous quantity of animals from England and Scotland, none from the United States. One or two have been sent from here. Don't you think in five or six years that the bottom will drop out of that trade, and they will have enough animals there. But of course there will always be a market for a very few.

Mr. MILLER: They won't have enough of the best, but a big part of the trade will disappear.

Mr. SPARK: It is a question worth discussing as to whether the trade will last.

Mr. JOHNSON: I don't think it is any good.

Mr. SPARK: I think it is too risky when you come to pay the enormous price, and you must remember you are dealing with a peculiar people who are very jealous though very hospitable. I think the risk is so great that it is scarcely worth taking.

Whilst there, I went to the La Plata cold storage and freezing works, the newest of the kind in the world. It is about forty miles from Buenos Ayres on the La Plata river. It covers about sixty acres of land. The cattle are sent there to be slaughtered and they go through a regular process, come out of the buildings and are loaded directly into the ships, and every department of those large works is built so that it can be at once duplicated.

Mr. John Cooke was kind enough to show me through the plant. They are killing 4,000 sheep per day, and 500 bullocks, I saw the first big shipment of chilled beef go out, and I was naturally anxious to hear how the shipment got on, and I was informed that 60 tons of the meat was condemned as unfit for human food. They say this was because the freezing arrangements were not right on board the ship, but I am rather inclined to think it was owing to disease, and when I tell you, that, in that country they have the foot and mouth disease on every big ranch, and they have anthrax, tick, and red water all over the place, and cannot get rid of it. I said to the chairman of the Board of Agriculture "that it was strange that this meat should be allowed to go in," and he said "I don't think it makes much difference in dead meat," and what we want to look after is the small slaughter houses of the old land.

Now the point I want to make is, that if they can do such an enormous trade, don't you think it it worth trying the dead meat trade in this country? and that if you can do this frozen meat trade, there is a great opening for your beef in England. I don't think Argentina will be very strong competitors with you, if you go in for frozen beef. For this reason, you are only ten days from the old country, and with the boats they have, the quickest time they can get there, is twenty days and I think you have an advantage in the climatic conditions here. It is very hot there in the summer, and they have got to put their meat right on the boat without exposing it to the air at all. At the present time it is just exposed to the air for about thirty feet

as it passes on board the ships, and they tell me that is a very serious consequence, and they are considering how they shall build a place right on to the water so as to cover that little distance. And if you establish a frozen meat depot here, you will have to provide it at a place where ships can go right alongside and load.

Mr. Cooke said that they could not work it in Argentine at all, at any place where they could not ship immediately on to the boat.

I would like to make one or two remarks about cattle there, that I think will be of interest to you. At the convention last year, I heard a suggestion made that grade cattle should be sent over there in large quantities to be sold. Now you must disabuse your mind of that altogether because they won't buy one, and if they do the highest price they will give you for a grade animal there is about $75, and that is just the amount it costs to get the animal over there.

Every bull that is sent over there should be eligible for the stud book and must show its pedigree; the last sire and the last dam must be inscribed in the pedigree, and must have been born before the year 1850. I do not say the cattle that are not eligible, for their stud books won't fetch good prices, but the best cattle to send there are those that are eligible for their own stud book.

When a man goes to buy cattle there for the dead-meat trade, he must buy the whole lot that a man has, and amongst that lot there will be a great many culls, and the average price they give is just about $40. Some of them are very good and some poor. That is $40 in gold.

A MEMBER: How old are these cattle?

Mr. SPARK: Three to four years old. The sheep I saw were certainly of a nondescript character. A great many Lincoln breed and a great many Merino: Lincolns are the most favorable. The sheep going into the slaughter houses do not look like a good lot by any means, and they complain themselves of the poor quality of the mutton, and they are cutting down the mutton, and they are going to increase the beef there.

I was judging heavy horses at the show, and before my class came on, I watched the hackney class judged, and I dare say some of you gentlemen will be amused when I tell you that the judges sat in the grand stand, and the horses were paraded before them. The judges were smoking cigarettes, and they pointed with a stick to the horse they thought ought to win. They never got in the ring, and never touched his legs or put them through the paces. That is a positive fact, and I thought it rather peculiar; and being very fond of the Hackneys, and being supposed to be a fair judge of them myself, I had a good look at these horses, and I found that the horse that should have been the champion horse never got any ribbon at all.

When my class came on, I was judging with Captain Knight and Dr. Aucheurena. Captain Knight said to me "We shall have some fun with this gentleman: he judges every year. When the first class were brought in there were about 18 of them. He pointed to a horse and got rather excited. He said "that is the horse that must win" and I said "we haven't seen them yet," and he said "Oh, that doesn't matter, he belongs to my friend." However, we talked the gentleman over, and he was kind enough to give way, and we fancy we got the right animal to win the prize, and it eventually got the championship. I have a photo here and I maintain that the horse is not a pure breed Clyde, and I took a great deal of trouble to find from the breeder of this horse how the horse was bred. He told me that he could not guarantee that he was a Clyde beyond two generations; still, however, he is a very good stamp of a draft horse. I must say I was a little bit

disappointed with the type I found there. We got through judging very well. I do not think the horses were high class. I had an idea that we were going to bring some horses over to this country for Canadian farmers; some good horses that we can sell cheap; horses weighing about 1,400 or 1,500, that could be sold at about $120. Well, I saw a great many horses there and with the exception of the show horses I would not give you $25 for the best horse there.

Mr. JOHNSTON: What is the matter with them?

Mr. SPARK: A weedy miserable lot of no breed, and they are all fed on alfalfa. They never have corn, and in a great many instances these horses will never learn to eat corn, and I think a great percentage of them would probably die on the way, and the ones that would reach here would only last a very short time.

Dr. MILLS: By corn you mean, grain.

Mr. SPARK: Yes; they have no horses there that would suit you at all. I left New York on the 1st of July and I crossed the equator on the 17th of July. I have crossed the equator eight times, and I was told that we would find it very hot crossing there, and that we would have to take very great care of the cattle. The day we crossed I had every opportunity of looking at the temperature, and it never was higher than 78 and I certainly have never crossed the equator that it has been so cool. Going to England the temperature was 98, and that shows that shipping from New York, I do not think you need have very much fear of the cattle going wrong from the excessive heat. In fact, all the cattle we took there gained in weight on the ship. We took with us one Hackney Stallion, and he certainly seemed to me to be a little bit heavier and very lively when he got off the boat, so that I do not think there would be anything to fear from the sea voyage; but it is a trade that you must think of very seriously before you invest very large sums of money in it. They have the most strict quarantine regulations. You have to keep your cattle there for 40 days before they are tested, and then after the test, if they are found wanting, they are slaughtered at once, and they don't give you any compensation.

ADDRESS.

By Hon. SYDNEY FISHER, Ottawa.

I wish I could have been here earlier in the evening to have had the advantage, with you, of listening to the addresses you have heard to-night. Let me just say a word in regard to this show, which I can call I think "The Eastern Ontario and Western Quebec Fat Stock Show." I feel very much pleased, indeed, to know that here in Ottawa this show is meeting with success. It was an experiment a few years ago when it was begun, but it is now meeting with great success, but I fear even yet you have not got a very good place in which to hold your meetings, and it is perhaps, fortunate that we have this little room here in which under the auspices of the department you are able to meet your friends, and have a little discussion upon matters that are of interest to us all. How the difficulties in regard to a building may work over in the future I am not prepared to say, but I am satisfied that the necessities of the show must be met, and that good meeting places must be provided for the farmers, who come in such numbers to the exhibition. This is more necessary now after the splendid example of the

Fat Stock Show at Guelph, and after the great success of the Fat Stock Show at Amherst, Nova Scotia, because to-day they are not simply fat stock shows, but they are schools where men, who are interested in live stock of all classes may get a greater stimulus through intercourse with one another, and the younger man may learn how to do that work which their predecessors have done so well. I venture to say, that what we called the educational features of these exhibitions are to-day the most important part of the exhibitions. I am glad to know that in the last few years in many other exhibitions through the country this educational feature is being put the front. This work is one that I have been extremely interested in. Speaking of this leads me to say just a few words to you farmers about the work of the Dominion Department of Agriculture. I may tell you frankly that I feel as though the burden of the work of that department was almost too much for any one man. The work seems to be pressing upon us and seems to be coming to us and crying out for attention more rapidly than we can possibly meet it. There is not a week passes in which some of my officers do not come to me and point out some particular thing, which has come to his notice, and which has been frequently brought to his notice by demands of the farmers through the country, and which in the interests of Canadian agriculture requires to be taken up and discussed. These matters require investigation and attention and there is not time enough, either in my own person or in the persons of the staff I now have, though that staff is constantly increasing. There is not enough officers at the command of the department to do the work that the agriculture of Canada demands, and this is a serious situation, it is one that confronts me and bears upon me. In one sense it is a good thing, and it is an encouraging thing, because it leads me to believe and leads my officers to believe that they are doing good work, and that the agriculture of the country is progressing and improving, and above all and more than all it leads me to believe that farmers of Canada to-day are thinking about their own business and try to improve that business for their own benefit and for the benefit of the country. There was a day when the farmers of Canada took very little pride in their business, but that time has gone by.

I do not want to instance any particular things. The Live Stock Institutes of Canada have been assuming in the last few years a new position. They have been organizing all over Canada in a way they never did before. The live stock interests of Canada are perhaps the most important part of Canadian agriculture which is going to guarantee the fertility of our soils. I do not wish to depreciate the great golden harvest that we have at the present time, but we all know that, that cannot go on forever, and that at sometime or other the whole Dominion must turn to the men who are interested in live stock for the permanent improvement of the agriculture of the country. I am sometimes almost tempted to prophecy that even in this western country the time will come when they will be the seat of a greater live stock, industry than probably exists anywhere else in the world, and when that time comes the agriculture of Canada will be more assured, more permanent, and more profitable than it has ever been.

Mr. Spark has told you of the possibilities of the live stock trade in South America, and there is to-day an export trade from Canada to South Africa, but I venture to say that live stock men in this part of the country will find their best market amongst our own people in Western Canada. (Applause). And this will be another, stronger, and greater tie to bind the people of the different parts of this country into one organized whole. I think to-day that in the Province of Ontario there is a group of live stock men who perhaps have hardly their equals anywhere in the world.

(Applause). These men have been of great service to the Dominion of Canada and I want them to spread their influence amongst the other live stock men, who have been comparatively careless and who have been more or less hap-hazard in their methods, and who have not been able to see how important the work is and how profitable it is if carried on well, and how much they lose by carrying it on badly.

The leaven has gone abroad, and I must urge upon these leaders that they should close up their ranks and organize themselves and spread their influence through the whole country so that they may increase and improve the markets for their very best stock. Do not let any of you imagine that you are going to be hurt in your business by the bringing in of other men; there is room for every man in the country to breed good stock. I urge this at the present time because the live stock breeders are looking carefully to their business and I trust that they will see to it that the working organization is completed and is done in such a way as to work to the advantage and profits of everybody in the live stock business. It is the duty of the department to do whatever it is called upon to do by the farmers in the country, and I would only say that you must not expect us to do too much at any one time. Hurried work can never be good work. Work that is not thoroughly thought out is not likely to be successful, and if sometimes you may think that the wheels of government in the Department of Agriculture do not move so quickly as you would like; exercise a little patience because care must be exercised and careful study must be given to the subject before the decision is reached and before the line can be laid down upon which to work. I have at the present moment three or four important problems in conection with the Department of Agriculture, problems which have been present to my mind and have been pressed upon my attention by difficulties in the different parts of the Dominion, which have existed for several years back; problems which have been difficult to solve and each of them requires careful thought and study and it is necessary for me to come in close personal contact with people of the country themselves before I can possibly see my way clear to the solution of the difficulties. This cannot be done in a day, it cannot be done in a month with the multiplicity of work which the minister has to do and when you remember that the Minister of Agriculture has to sit in the House of Commons month after month; last year for instance six months, and the year before eight months. Therefore, in order to get these things done a little patience is required and I ask you to have that patience. As long as I continue to be Minister of Agriculture I shall devote my most careful consideration to these things. They are all parts of my own business. Canada is going ahead in a way that demands careful thought and work of all your public men to an extraordinary degree. When the country is standing still it is comparatively easy to govern it, but when it is increasing as Canada is to-day problems come up so insistently that no public man can grapple with them and solve them at a moment's notice, because it is important that they should be solved in the right way.

I am glad of the opportunity to say a few words to you. You are gathered here for the purpose of listening to addresses upon interesting subjects and I hope to be able to hear some of these important addresses because I know they are to be given by the best experts in the country, and I can go further and say the best experts on the continent of America. Through my position I have come into close personal contact with the leaders of agriculture in Canada and I have also had the opportunity of coming into close contact with a number of the same class of men in the United States and in England and even with a few on the continent of Europe and I venture to say that for practical work and the practical applications of scientific

methods, the agricultural people of Canada to-day have at their command a body of men who are not equaled in any other country in the world. (Applause.) This may, perhaps, sound like a boast, but I do not believe the people of the country fully appreciate the advantages they have in this respect. I know in the Province of Ontario the institute meetings are largely attended and the people take full advantage of them and that is one of the chief reasons that the agriculture of Ontario is ahead of any other part of Canada. The people are only begining to wake up to the advantages of that kind of thing. I know that a number of you are taking part in institute work and you know that the other provinces are behind Ontario in that regard.

I congratulate you Mr. Chairman and all those who have been working to make this show a success. (Applause.)

The CHAIRMAN: I have always understood that the Premier of the Province and the Premier of the Dominion in selecting a cabinet find more trouble finding a capable Minister of Agriculture than for any other portfolio. We know what Mr. Fisher has told us is true. The other Provinces are behind Ontario in educational work, and if he wanted to go further he might have said it was because there was apparently not properly-trained material in these other provinces to place in charge of the Department of Agriculture. We have been fortunate in the Province of Ontario that both our former and our new Minister of Agriculture are practical farmers, and the Dominion of Canada is to be congratulated that the Hon. Mr. Fisher is occupying the position of Minister of Agriculture. He is not only a man actually engaged in farming as a breeder of farm stock, but a man who has exercised as large a part in the educational work in his profession as any good lawyer in the land, and he is in charge of the most important portfolio in the Dominion of Canada.

Dr. JAMES MILLS: I can only say to you that I am glad to once more have the opportunity of meeting the representatives of the live stock interest in the Province of Ontario, and I suppose also to some extent to the representatives of the Province of Quebec, and I am not only pleased to have this opportunity but pleased to see so many evidences of the fact that farming is on the up grade. For a long time it seemed to be on the down grade and a number are continually asking shall we ever reach bottom. There is no doubt that all classes of farmers in this Province of Ontario are making progress and are controlled by intelligent and progressive men who are learning from one another and I can agree with what the Hon. Mr. Fisher said that one of the most important organizations of the work in this country is Farmers' Institutes; that they are well handled and the work is done by good men. I agree with my friend that there is something in the farming community that convinces us of its power and stability. There is something in the occupation that develops a strong type of manhood that would lead one to the conclusion that in mental power and moral stability that the farming community will compare favorably, in this country, with any other class of people we have. The big men from all over the country are from the farms. I am glad to say the farmers are having more confidence in themselves. I am glad to have Mr. Fisher's assertion of the standing of the farmers in this country; compared with the farmers of other countries we are more progressive. I am glad we have not to apologize for our own men. My sympathy is for you still. I have something to do with matters that have more or less bearing on the farmers in this country, probably shall have more to do in that line in the near future and yet I am anxious to do the fair thing for the corporation. I am particularly anxious to see that the farmers, collectively and individually, receive their rights. (Applause.)

REASONS WHY SHEEP SHOULD BE REARED ON EVERY FARM.

By Robert Miller, Stouffville.

I suppose we should take it for granted that sheep should be kept on nearly every farm in the Province of Ontario if not on nearly every farm in the Dominion of Canada. It has got to be a recognized fact that mixed farming is much more reliable than farming for wheat or any particular kind of grain, and we believe that people who enter into mixed farming have not complete equipment without they have some sheep as part of the live stock to put on that farm. It gives them a greater variety of chances to come out at the proper end of the balance sheet, when we make out our accounts at the end of the year. It is a well-known fact that cattle breeding and cattle feeding pays on some occasions, it is also well-known that there are times when cattle breeding and cattle feeding do not pay very well, and it is the same with horses and the same with pigs. To speak from my own experience, and from the experience of others, I can truthfully say that I have never known a year, and I have never known a farmer that followed this business who was able to say he had seen one year when sheep did not return a balance on the proper side of the sheet, and that is one reason why a few sheep at least should be kept on every farm in this country. There are several other reasons and one of the first I may name is that a few sheep, if you do not have too many for the land, will find their living to a very great extent from commodities that do not have any commercial value. They will pick up their living in the fence corners and on the side of the road, and they seem to be very fond of what might otherwise turn out to be very bad weeds. They eat the weeds, and they eat the seeds, and there is a peculiarity about a sheep, that anything that goes into it's stomach will never grow again. If cattle or horses eat these small seeds they may go through them and they may grow after. In this way sheep are a great assistance in cleaning the farm and in helping to keep it clean. If sheep are allowed to go into the field in the early season they feed in the fence corners and clean out the weeds

It is an easy matter and pleasant work to look after a small number of sheep. Of course if we have a large number they need greater attention, but a small number of sheep are very easily looked after. It is a mistake to say that sheep do not need any looking after. They need attention at the proper time, a clever sheep man can see at a glance if his flock is thriving and we should always be watching for this, and be ready to give them attention and if we do so we will get the very best results. One reason why the people of Canada should keep sheep is that we are the nearest neighbors to the United States and we secure great advantages from living along-side of that great nation. The people of the United States are ready to drop what apparently is a modest thing and go into a big thing. When horses were paying well, a great majority of the breeders of the United States went into horses and the same thing happened when cattle were paying well, and they went out of sheep and consequently there is a shortage of pure-bred sheep in the United States at the present time and this gives the people of Canada an advantage in the selling. We are going to have a repetition of the years '84 and '86 and we can sell all the good sheep we can collect in this country for a good price to the people of the United States. I now have applications for sheep, for summer and autumn delivery in the United States to such an extent that I dare not contract for them all.

Our climate is very suitable for breeding the stock that are needed to improve and strengthen the sheep stock of the United States and of the great western ranch country.

In England where sheep live out of doors all the year they can grow them to a greater state of perfection at an early age than we can in this country, but, if we take two years of age as the age at which we compare sheep in England to the sheep in this country then we can grow them just as good as they can. We have selected many of the best breeds they have in Great Britain and it is recognized in the United States that this is the best and most convenient country they can go to to improve their stock.

Another point is that the people in Canada are well suited for this work. We do not try to do such big things as they do in the United States. A man there would not be satisfied to have 100 acres but would want 500 or 1000; in other words he would want to bite off more than he could chew. In this country we are satisfied to undertake modest things, but we insist on doing it well, so that whether we breed sheep or cattle we take better care of them.

Another reason why it is good to have sheep on every farm in this country is that mutton and lamb is a very healthful food for the people of this country. It is a very nice thing during a certain season of the year when it would be impossible to kill a beef for either two or three families, to have the privilege of going to the field to get a lamb. There is nothing more tasty and nothing more healthful. It is said to be one of the greatest delicacies in the best homes in this land and in the best houses in England it is enjoyed to a greater extent than in any other country in the world. We are coming to the consumption of lamb and mutton in this country to a far greater extent than ever before and the same thing is true in the United States. There is another reason why we should keep sheep on our farms, and that is that we can make splendid use of the wool we get from our sheep. there is nothing that can be used to a greater advantage in the house than the wool we take from a small number of sheep, and the wool we have left after we have used all we can in making blankets for beds and horses' blankets, can be sold at a splendid profit. It is perhaps the best paying product that can be sold from any farm in Canada, and we get that income in a season of the year when we have very little else to sell.

The prospects at the present time are particularly good for sheep breeding. Wool has advanced in value in the United States and to-day good heavy lambs in the market in Chicago are worth about eight cents a pound. There are about sixty thousand more sheep in the United States than there were one year ago, and in Canada there are less sheep than there were a year ago. And the wool that is available for the factories in the United States to go on with their work till the new crop comes in is fifty million pounds and one year ago it was one hundred and twenty-five million pounds. I speak of the United States so much because the demand for sheep in this country is controlled very much by the demand in the United States.

Q. What is the reason of the decrease in the number of sheep in Canada?

A. They tried sheep breeding in certain parts of the North West, and they had trouble with them. They found that some of the weeds that grew there were very injurious to them and killed them off, and a great number of people that had large numbers of sheep gave them up, and a great many farmers throughout this country think there is more money in breeding cattle and horses. The increase in the United States has been brought about by the fact that in a great many of the south-western states they had so

many cattle that they were not doing well, and now they are trying sheep. I have known men who would almost want to hang anybody that would take sheep into the State of Texas, and they are now going into sheep breeding themselves. I had a letter from one the other day asking if I could get 200 well-bred ewes, because he thought there was a great promise of making money in that business in the future.

A MEMBER: In our part of the country, they think the land is too good to keep sheep, and another reason why they object to them is because the sheep graze the pasture too bare.

Mr. MILLER: No matter how good the land is you ought to keep a small number of sheep. I believe in a farmer keeping all the sheep his land will carry. I have a farm of 140 acres that is well adapted for sheep, but it is not adopted for a heavy stock of sheep. I can scarcely grow lambs on that farm now, because there have been thousands of sheep on it from year to year for a good many years, and it has now got to that condition that it is so filled with a certain poison that apparently comes from sheep, that young sheep up to six or eight months old, won't thrive there, and I have to change and put my sheep on another farm, and if I had kept just a reasonable number of sheep there it would never have got to that condition. There is a farm opposite my father's that has a gravelly subsoil, and it is heavily stocked with sheep, and they are kept without any assistance except from the grass they pick up in the fields.

A MEMBER: Don't you think sheep will do better on a gravelly farm.

Mr. MILLER: A small number of sheep will do well on any sort of land. If you have a big flock they must be changed from one field to another, and require a gravel or sandy subsoil.

Q. What about low land?

A. I suppose there are farms so low that they would not care for a big number of sheep, but a small number will thrive well any place.

Q. Do you think they injure grass by eating it off too short?

Mr. MILLER: I don't think you want to put cattle into a field after it has been eaten bare by sheep. I don't think you will injure the grass by allowing it to be eaten off short.

A MEMBER: Cattle do not like grass when there are too many sheep on it.

Mr. MILLER: No, they do not like it, and sheep do not like it, that is if they have been over it too often.

A MEMBER: Is heavy clay land injurious to their feet.

Mr. MILLER: No, I do not think so. If you get sheep with diseased feet, and put them on heavy clay, it is more difficult to cure the disease.

A MEMBER: What is your treatment?

Mr. MILLER: I have a mixture that I use for that purpose, but I may say to you that there is no foot rot in this country, but in the old country you will scarcely find a flock where they have no foot rot, and that is owing to the laziness of the shepherds they have over there. A little attention will cure it, and there is no excuse for having it in this country, because there is fifteen days' quarantine.

A MEMBER: My sheep got lame on the clay land, and I think it is on the account of the foot growing long. If you keep your sheep on the clay land, keep the hoofs pared off, and I do not think they will be bothered with foot rot.

Mr. MILLER: We never have to pare the feet of the sheep where they are allowed to run out. If you keep them on manure during the winter time, their feet are apt to grow long. Foot rot is a disease caused by infection altogether.

Mr. John Jackson: Mr. Miller has left very little for me to say. We all know something of Mr. Miller, and the experience he has had. He was born and brought up a stock man, and he has had a lot of experience, and I can agree with what he has said, and I think there are many reasons why sheep should be kept on every farm. One is, that they produce as much weight as any other animal for the amount of food that they consume, and you have only to study the market reports to see that they bring more per pound than cattle in any of the leading markets, and another thing, sheep of the right sort with any fair chance of pasture are always ready for the market. You do not have to put them up and stall feed them. There is a very great difference in sheep; they are not all of the right sort. They will not eat anything that is foul, yet they will eat nearly all kinds of weeds, or any kind of food as long as it is clean; and where a good flock of sheep are kept you will not have much trouble with the weeds. A few years ago I was travelling on the roads where sheep were allowed to pasture and you could not see a weed on the roadside, but in the fence corners and the fields where the sheep could not get, there were plenty of weeds, especially ragweed. Building material is always getting more expensive and 50 per cent. of this item is saved where you can keep sheep because they do not require expensive buildings and in the matter of labor, which is an important thing at the present time, you would save another 50 per cent.

A Member: Do you think cement is a good floor, or would you just have a ground floor?

Mr. Jackson: I would have a ground floor; there is nothing better for sheep but you must keep it dry, by having it higher than the ground outside the building. I believe one man can attend to all the sheep that will be kept on 100 acre or 200 acre farm, when fully stocked with sheep. If you go in for raising early lambs you will require better buildings, but I do not think that is the best thing for the ordinary farmer to go into. You can adjust your feed to suit your stock in sheep better than anything else. There are so many crops you can raise, such as rape, when you see that your crop is going to be short, and I have got a good crop of hay off where sheep have been pastured. They do not trample it down or spoil by soiling like other stock.

A Member: Is corn a good crop for sheep?

Mr. Jackson: There is nothing better than green corn run through a cutting box. They will do very well on cut corn fodder, but not too much.

A Member: Do you think it is hurtful for breeding ewes to be fed on turnips?

Mr. Miller: No, I do not think so. It would not be advisable to feed them too much.

A Member: Do you think that clover hay is about all that a flock needs during the winter?

Mr. Miller: Yes, I think the greatest part of their food should be clover hay.

WINTERING BREEDING EWES.

By A. W. Smith, Maple Lodge.

The report of the address as delivered at the Provincial Winter Fair by Mr. Smith will be found on page 85.

Discussion.

Q. Is sulphur mixed with salt good for breeding ewes and will it destroy the ticks on them?

Mr. Smith: I have heard that claimed by shepherds but I have never tried it. I never found any necessity for it. I have more certain and more profitable system than feeding sulphur. There is always danger in feeding sulphur to animals.

Q. What would you suggest to destroy the ticks if they get into the flock?

Mr. Smith: I dip the sheep twice a year. I always dip them a few days after they are sheared. I dip the ewes and lambs, every one of them and usually one dipping is sufficient, then in the fall when we bring them in the house I go over them and dip them again. I take every sheep and lay it on the platform on its side and separate the wool, and we use the dip of double strength. We pour it in, and that will spread all over the skin and destroy all the ticks and it will also destroy the red lice.

A Member: What mixtures do you recommend for that?

Mr. Smith: There are several dips and I do not think there is much difference in them. We use McDougald's dip.

A Member: I never used a dip simply because my sheep get salt and sulphur in the shed in the winter time, and I have never seen more than two or three ticks in my whole flock.

Mr. Smith: I have heard the same thing said by shepherds who have had more experience than I have had.

A Member: Of course, I do not make a business of sheep, and I think where a farmer only keeps a few sheep. the sulphur in the best plan.

Mr. Smith: I have heard good shepherds claim that sulphur mixed with their salt is a preventive for lice and ticks on sheep, and as a preventive I believe it may be all right, but if the vermin are already on the sheep, something more prompt and certain should be used. Sulphur may be good for sheep in the ways; I do not know. I have never tried it, and I do not wish to try it because of the element of danger there is in its use. We have bred sheep on our farm for over fifty years, with a fair share of success, and have not missed the use of sulphur, yet I would not advise anyone either for or against its use.

I dip the sheep twice a year; always in the spring immediately after shearing, or as soon as the weather is mild enough so they will not suffer from the chill that might follow if the weather is too cold. Ewes and lambs are all treated alike, and I think the flock benefits from the dipping. It cleans the skin thoroughly and stimulates the wool, making it grow faster, and adds to the lustre and strength of the fibre. The destruction of the ticks and lice on the sheep is very important. They do not do nearly as well when so infested. We use McDougall's dip and find it very satisfactory, more so than any we have tried. We always give a second dressing in the fall, just before winter, making the dip double strength and separating the wool in two or three places the length of the sheep body, and pouring in the dip sufficient to thoroughly saturate the entire skin of the sheep.

J. M. Gardhouse, Weston: I believe that nothing succeeds like success, and if we are going to be successful in the sheep business, we have got to attend to it, and the results will follow. I agree with the other speakers that you should feed liberally. I have found it to be advisable to give them clover hay in the morning, and perhaps a few peas unthreshed in the straw and pea straw in the evening, and it will give you good results with the breeding flock. I also have had good results from feeding pea straw three times a day, and a bushel of turnips divided among the flock of twelve once a day. I am not in favor of feeding grain in any quantity in any flock before the ewes commence to lamb. It is advisable at times to feed a small amount of oats and bran a short time before the ewes commence to lamb. I do not think there are any animals that require as careful attention and kind treatment as a flock of ewes. I believe mixing sulphur with the salt is a good idea either for cattle or sheep, and rock salt is a good thing to have before them so that they can take it whenever they want it. We usually dip our sheep. I think it is very essential to have a supply of fresh water for the sheep.

A Member: They will live without it.

Mr. Gardhouse: Yes, but I do not think you will have the best results.

Mr. Miller: Do you feed the turnips whole or cut.

Mr. Gardhouse: I prefer slicing to pulping.

A Member: Why?

Mr. Gardhouse: Because I think they are not wasted, and the sheep like them better and it gives them more exercise.

Mr. Miller: Do you not think the sheep get a lot of exercise from scraping the turnips?

Mr. Gardhouse: Yes, I think they do.

Mr. Miller: I think they get exercise that way that they cannot get in any other way.

SWINE.

There was a very large attendance at this meeting, and a feature of it was the interest taken in the lectures by the members present, many questions being asked, and the whole audience remaining until the proceedings closed. G. C. Creelman, President Ontario Agricultural College, occupied the chair and in opening the meeting said, "We are pleased to see so many out to take an interest in the meetings in connection with the Eastern Fair, and I am sure you will be very much pleased with the addresses you are to be favored with this afternoon. We have men here who have given special attention to the bacon industry; Professor J. H. Grisdale of the Experimental Farm is going to talk to you on the results of some recent experiments with bacon hogs. The eastern part of the Province has led in dairy cattle for many years. It is generally understood that when you get east, you can see more dairy cattle in one week, than you can in the Western part of the Province in a month, but when you look for hogs they are not so plentiful. It is only in the last two years that the eastern farmers have gone into them generally. In the west we had to abandon the old method of growing grain and get into mixed farming, and now it seems absolutely necessary for us to get into that class of farming which will improve our farms and to do that we want the dairy cow and the bacon hog. At first we raised the fat, thick hog, and we have some of them yet, but it was found we could not compete with the Americans in the fat, thick hog on account

of their having cheap corn. Then we found the British market was demanding a certain kind of bacon, and that the best brands of this bacon was coming from Denmark and Ireland, and by reason of this particular class of hog we have been able to capture a considerable portion of that market. Professor Day will tell us about the market conditions in England. We have now got to the point where bacon is considered a by-product of the Dairy industry. The man who raises milk finds he can profitably feed the by-product of that milk to his hogs and thereby hold out the average profit of each cow, therefore it is quite natural that those who prepared this programme should run together the two subjects of "Swine and Dairy Products."

RESULTS OF SOME RECENT EXPERIMENTS WITH BACON HOGS.

By J. H. Grisdale, Central Experimental Farm, Ottawa.

The report of the address of Mr. Grisdale will be found on page 95.

R. Clarke: *Regarding my experience in pasturing hogs, I must say that if I did not have pasture for my hogs I would not have a hog. That has been my experience for the past eight years. In my estimation a hog is a grass animal, just the same as a steer, and I believe in sowing grass for the hog, just the same way as I would sow grass for the steer. The cheapest way you can produce a steer is, on the grass, and if a hog is a grass animal, why not the same; that is how it struck me. With the majority of farmers who raise hogs you will generally find them around the house, on a goose patch, where they have to nibble away from morning to night and then do not get enough to eat. It is very seldom you see a farmer sowing pasture for his hogs. Last year after my sows raised their litter; I turned them out on the pasture with the cattle, and they never saw a bite of grain, until I brought them to the exhibition and took first place, and these hogs never came from the pasture for a drink as long as there was water in the pasture.

A Member: Do you ring them?

A. Ring them all and they never try to root. When I first went into that business, I made up my mind to produce the bacon hog, because they were the highest price, and I wanted to get the highest price. I found the whole world was starting with their hogs coming in the spring, and I thought the best time for me to start would be in August to produce the proper bacon hog. In order to produce the bacon hog you have got to grow the pig to it and not feed him to it. The farmer who starts early in March with his young litter, in order to get them ahead, has got to feed twice or three times a day and he finds that he has got a fat hog, and he is cut from 50c. to $1 a hundred because the hog is too fat. I tested all the different breeds, and I found the Chester White hog to be the best grazing hog although I was bound when I started in to select either a Tamworth or a Yorkshire, because they were reported to be the best bacon hog but when I put them on pasture under the same conditions as the Chester Whites they did not do as well. I gave them one feed a day on clover I had 150 hogs in one field, and I gave them three bags of grain scattered on the ground, and they did their own grinding, and went down to the river and drank the water. The first shipment I made out of that bunch of pigs was to the George Matthews Co., in

*Note.—While not on the programme, Mr. Clarke gave considerable information as to his experience in preparing hogs for market. He is a breeder of Chester White hogs.—Editor.

the month of July, and I sold them for 7¼c. a lb. live weight. I took one hundred hogs out of the field, put them into the cars, and I guess it was the first and only car of one hundred hogs that contained one hundred select hogs that ever went into his storehouse in one car raised by one man. Other pigs that I had went back into the house, and had to be fed for six weeks, and then I did not get them in proper shape.

A MEMBER: What do you do with your spring litters?

A. They all go out for breeding stock, I cannot supply the demand.

A MEMBER: You started to speak about the August pig.

MR. CLARKE: Yes, that was my start. I winter them, for you can winter 100 hogs on five acres of roots and finish them on the grass, and give them one feed of grain with the clover. I always sow a fresh field of clover for the hogs.

Q. At what age do you finish them?

A. They will be just a year old. They are with the sow two months and I am feeding them about ten months.

Q. How do you winter them?

A. Just take my cattle shed and run a partition across, I have not built a hog house yet.

Q. How do you feed them?

A. Roots and mangels, and a little grain dusted over the roots.

Q. Do you pulp the roots?

A. Yes, I have a hot water tank made about five feet square, and it is over the feed box, when the water is boiling I put my pulp roots in and then turn on the water.

Q. Do you use a little salt now and again.

A. Once in a while.

Q. Do you use clover hay from the cutting box?

A. I never tried it but I should think it would be good.

Q. What kind of grain do you feed with the pasture?

A. The best result I ever had was corn and barley whole about equal parts.

Q. How many acres of pasture have you?

A. That year I had ten acres for 150 hogs. I sowed clover seed about ten pounds to the acre the previous year, and another thing I can tell you, 150 hogs will make ten acres of land like an onion bed.

Q. Do you keep them on the grass all the time?

A. Yes, three years ago we had a big clover crop, and I had three acres, that fed one hundred hogs, and we cut the clover; afterwards, I drilled the clover in, and sowed it again in the spring, and the clover was three or four inches high when I turned the hogs in, and they could not catch it, in fact is got too strong and it was better when it was cut.

Q. Do you give the hogs any shelter in the summer time?

A. No, just throw out a stack of straw for them to lie on.

OBSERVATIONS ON BACON PRODUCTION IN DENMARK AND ON BACON MARKETS IN ENGLAND.

By G. E. Day, Professor of Animal Husbandry, O.A.C., Guelph.

The address of Prof. Day will be found in the Report of the Ontario Agricultural College for 1904. Any member who has not received a copy of that Report may obtain one upon application to the Department of Agriculture, Toronto. Below will be found the discussion thereon at the Eastern Show.

Q. Would it not be expensive to maintain two breeds of swine expressly for crossing purposes?

A. Under ordinary circumstances this would be an expensive method, but the manner in which breeding operations are conducted in Denmark lessens the expense to the farmer. In Denmark there are comparatively few farmers who breed pure-bred Yorkshire swine. These men are specially selected by the government, as I understand it, and they sign an agreement to breed nothing but pure-bred Yorkshires. In return, the government gives these men some financial aid towards importing Yorkshires from England. These breeding stations act as distributing points for Yorkshires and the hogs are sold to farmers throughout the country.

Q. Of what breed are the sows used for crossing purposes?

A. Owing to the fact that the Danish swine are the more numerous, it follows that more Danish sows are used than Yorkshires. Of course, there is a certain amount of crossing both ways, and a certain number of pure-breds of both the Danish and Yorkshire breeds often find their way to market.

Q. About what weight do they require their bacon hogs?

A. About the same as in this country, from 175 to 190 live weight being preferred.

Q. Do they get them ready for market in six or seven months?

A. As a rule, I believe they do. Of course, there is considerable variation there just as there is in this country. Some farmers have their hogs ready for market earlier than others, but the average age of the market hog would be from 6 to 7 months.

Q. Do you know anything about their system of feeding?

A. Their system of feeding is very similar to our own except that they feed their market hogs confined in pens. Land is scarce and valuable so that they do not pasture any more than they can help. They feed mixed grains of which barley composes an important part. Corn was used quite extensively at one time, and is still used to a considerable extent in some places. The packers, however, are doing all they can to discourage the use of corn, as it tends to injure the quality of the bacon, making it soft and consequently unfit to class as No. 1. As Denmark is a butter producing country, and as practically every farmer keeps cows, we find that skim-milk is almost invariably fed along with the meal ration. This is one thing which helps them produce a superior article, as there is probably no food equal to skim-milk for producing a high class of bacon.

Q. What chance has Canada to compete successfully with Denmark in bacon production?

A. The Danes have several marked advantages over us. They produce a much more uniform product of superior quality, and they are nearer to the market than we are. On the other hand, we can feed hogs much more cheaply than they can, and consequently can under-sell them on the British market and still make a fair profit. It costs the Danish farmer about 6 cents per pound live weight to produce his bacon hogs, and at the time I was there in July, the farmers were getting about 6¼ cents per pound live weight, and

were complaining very bitterly that the price was too low. The director of one of the factories I visited told me that he did not think there was much in it for the farmers at the prices prevailing at that time. To me this seems to be our main hope of successful competition at the present time, though, if our farmers would pay the same attention to producing a high-class product, there is no reason why we could not obtain nearly, if not quite, as good a price in the British market as the Danes. Whether we maintain our place or not depends entirely upon the feeders of swine in this country.

Q. Do you not think that the practice of Canadian packers in paying a uniform price for all classes of pigs, tends to prevent progress in the improvement of our bacon?

A. Undoubtedly it does, but it is difficult, under present conditions, to suggest a remedy. Our system of marketing hogs renders it almost impossible to have them properly graded. Some day, perhaps, this injustice may be remedied, but at present we shall probably have to make the best of it. One thing is certain, however, if our farmers do not pay attention to the quality of their hogs they will be compelled to take lower prices in the future than prevail at present. When we have nearly lost the British market and the price of hogs goes a great deal lower than it is at present, we may see our mistake and be ready to work more intelligently to get that market back and to hold it.

Q. Is there not more in the feeding than in breeding?

A. No, I cannot admit that. Feeding will do a great deal, but it cannot overcome the individuality of the animal. By injudicious feeding you can ruin a good hog, and by proper feeding you can improve a bad type, but unless the animal is bred right you cannot make the best No. 1 side out of that hog. What is required is a hog that is properly bred to begin with, and then properly fed to develop his best qualities.

Q. Will a good type of bacon hog cost more to feed than a fat type?

A. No, it will not. You can produce a first-class type of bacon hog as cheaply as you can any other type of hog. This is difficult for many people to believe, and at one time I did not think it true myself. I tried for six years to show that a fat hog will put on flesh cheaper than a bacon hog and I could not do it.

Mr. GRISDALE: So did we.

Q. Do you think that if you took a half Yorkshire and half Berkshire you could produce pork cheaper than you could with a pure bred Yorkshire?

A. In some cases you may, and in other cases you would find the result in favor of the Yorkshire. In our six years' experiments with different breeds, we compared Yorkshires, Tamworths, Berkshires, Duroc Jerseys, Chester Whites and Poland Chinas. We found that the different breeds varied in economy of production from year to year, and that it was practically a question of individuality. If you have a thrifty type of hog it will make economical gains, no matter what breed or cross it may represent. It must be remembered, further, that a good type of bacon hog weighs much better than his appearance would indicate, and unless a person weighs the feed and also weighs the hogs, he cannot tell which animals are making the most economical gains. I remember in one of our experiments the Poland Chinas appeared to be doing remarkably well, and I was sure they would head the list in economy of gain in that year's experiments. The man who was feeding them also had the same opinion, but when we closed our experiment, in which every ounce of feed had been weighed, and reckoned up, the amount of feed consumed by the different breeds, we found that the Poland Chinas were at the bottom of the list in point of economy of gain. I quote this example merely to show you

how badly mistaken a person may be with regard to the relative feeding qualities of different hogs, if he does not weigh both the feed and the hogs. You may take it for granted that breed has little or nothing to do with economy of gain. It is true, that an extremely lanky, shallow-bodied, long-legged pig is an undesirable type to feed, but such an animal is not a desirable bacon type. It is possible to confine first-class bacon type and first-class feeding qualities in one animal, and the sooner our feeders learn to recognize this type the better it will be for themselves and for the bacon industry in general. I do not think, however, that it would be advisable to attempt to feed Yorkshires or Tamworths largely on pasture, as they are better adapted to pen feeding.

Q. What breed or breeds comes nearest to the bacon type?

A. There is no doubt that the Yorkshire and Tamworth are nearest to the bacon type.

Q. Is the barley used in Denmark the same as our barley?

A. So far as I could make out, it was practically the same, though I did not look into that side of the matter very carefully.

Q. Do they use clover silage instead of pasture for their hogs?

A. I could not find anyone feeding clover silage, though possibly it may be done in some places. They feed a considerable amount of green food in summer, and roots in winter.

The Chairman: I think the people of Canada have demonstrated that they are a generous people, and I think the fellows who are bachelors will not object to paying school rates just the same as the other fellow who lives alongside of him and who has a large family. I think that you and I have never objected to keeping up good streets in order that other people may drive on them. It seems to me that the same principle applies in connection with the production of the bacon hog. I do not think any person should object to help his neighbor, as I believe the man who is willing to help his neighbor as well as himself, is better than the man who would prefer to drag his neighbor down, and then have to go down with him.

ECONOMICAL MILK PRODUCTION.

By H. H. Dean, Professor Dairy Husbandry, O.A.C., Guelph.

There are several factors which enter into this question of economical milk production, but owing to the limited time, I shall have to pass somewhat hurriedly over some of the points.

The first factor which to a large extent determines economy of milk production is the man handling the cow. Men who are accustomed to handling steers and who would rather feed steers than milk cows, are usually the men who will not get the milk economically from the cow. There are some men very much like the old maid who said she hated men so much that she would not even use a hymn-book in church, and there are some men who hate cows so that no matter what kind of a cow you give them they would not be able to produce milk economically. A man must first have a real love for his cows, he must be able to coax the milk out of them. I never saw a better illustration of that than in our own stable at the present time, where we have a man who can literally coax the milk out of the cows. They are giving more milk than they ever did under any other man that I ever had; the cows milk better than they have done for years, and I will tell you how he does

it. He goes among the cows and talks to them just as he would a human being. He is a man who really loves cows. He was receiving $100 a month, and he came and worked for us for $36 a month. I asked him why he did it, and he said because he liked cows.

The next factor is the cow herself. In this connection I wish to refer you to a test that we finished last week, and I want to show you the capacity of the modern dairy cow. This cow that I refer to gave 544 pounds of milk in seven days containing 22.1 pounds of fat. In thirty days she produced 2,329.5 pounds of milk containing 90 6 pounds of fat; which under ordinary circumstances would be equal to 105¾ pounds of butter in thirty days, or an average of 3½ pounds of butter a day. That is not a guess, we know that to be a fact because a man was sent to the farm, and all he did for thirty days was to look after that cow and see that she was milked properly and that the samples were taken properly, and we know that this cow produced an average of 3½ pounds of butter a day, and gave over a ton and a quarter of milk in thirty days. In the face of these facts we find a great many farmers who are satisfied with a cow that gives from 2,000 to 3,000 pounds of milk in a whole year.

A MEMBER: Is she an Ayrshire?

Prof. DEAN: No, she is not an Ayrshire. Her average daily production for thirty days was 77.7 pounds of milk, and the food cost of 100 pounds of milk was 52.3 cents. The food cost of one pound of butter 11½ cents. She ate for thirty days an average of 26 pounds of meal per day. A great many men say if they give a cow a couple of pounds of meal, "Great Scott, I will never see that again," and they sigh and say, "Is there any money in cows anyway? Just think, I have given her 2 pounds of meal, which cost two cents."

A MEMBER: That cow was not paying for herself in thirty days. That 26 pounds of meal would probably burn her out.

Prof. DEAN: I do not suppose she would stand that amount of meal for a whole year, but the cow was apparently as well at the end of thirty days as when she began, and I think she would take up the work in another year as well. I mention this as an extreme case, showing just what a first-class cow can do under favorable conditions. A great many people do not know what it is possible to get out of a cow when you get the right kind of a cow. Feed is all right, but you must have the right kind of an animal to start with.

A MEMBER: Would you think it wise to feed that animal all the year through in that way?

Prof. DEAN: No, I do not think it would. This man has in mind selling that cow for probably $2,000. I understand that is the figure he has put on her at the present time.

A MEMBER: What breed is she?

Prof. DEAN: A Holstein. I want to refer you to an article in the "Ayr Advertiser" giving a report of the Ayrshire Agricultural Association. At that meeting a man named J. H. Turner is reported to have said that it was absurd that people should be able to point to a certain cow as a first prize one, when it was really useless as a commercial animal. The judges should put the prizes according to the cow. The editor of the paper makes the following reference,—"The question raised by Mr. Turner at the annual meeting of the Ayrshire Association is an important one; he says that the factor that determines the worth of the cow to the Danish farmer is the power of milk production, and that is the system which should certainly be followed with reference to Ayrshire cattle."

I hold that the dairymen of this country must give more attention to the dairy qualities of their animals or in other words their power to produce milk and I think these shrewd Scotch farmers are beginning to realize that they have made a mistake in their system of judging cattle at their shows in Scotland. I presume they have realized the truth of that statement made by the great teacher when he said, "Ye blind guides, who strain at the gnat and try to swallow a camel," or as the old fellow said in reading that "They strain at a gate and try to swallow a saw-mill." The time has come when we must change, and the man who is breeding dairy cows must breed them not for their form but for their power to produce milk. One of the cows in our herd produces milk at a cost of 31 cents per 100 pounds, another cow costs us 79 cents for the feed to produce 100 lbs. of milk, and if we are sending her milk to the cheese factory, and getting 65 cents for 100 lbs., for it, how many cows would we have to keep before we would get rich? And yet there are a number of cows in this country that are producing milk that costs about the same price.

The first cow on this chart that I have here, produced butter for 7½ cents per pound and the poorest produced it at 17 cents per pound, and that is just the difference between a good and a poor cow.

We have an experiment at the present time going on in our dairy stables. Since the first of the year we have had nine cows under experiment, three in each group. Unfortunately one cow in each of two groups went dry. One of these cows was getting 12 pounds of meal per day and in spite of that she went dry. I do not think the average cow can make profitable use of 12 pounds of meal per day for any length of time. The experiment we have been making is with reference to 4.8 and 12 pounds of meal under normal conditions. In the first group of cows during the month of January, the average daily milk production was 24.4 when we fed 4 pounds of meal per day, and when we increased the meal to 8 lbs. of meal per day the production was 28.8, and 12 lbs. of meal per day it was 28.7. Where the quantity of meal was doubled the increase in the milk production was very slight. Of course the month of February was much colder than January and that might affect the result to some extent. In every case a large quantity of meal increased the cost of production of the milk. We expect an increase in live weight. The increase in January was 34 lbs. per cow and in February only 17, although the quantity of meal was increased; and the question is, what became of the increased meal? They received practically the same quantity of roughage in all cases. Our roughage consists of ensilage, mangles and hay. The hay is cut, the mangles are pulped and all are mixed together. You must find out how much meal each individual cow can make use of profitably. In the case of the first cow I spoke of it was found that she could use 26 lbs. of meal per day under those special conditions.

Another factor is the question of stable. In our stable we had a wooden floor, and it became so bad that we tore it out and put in a cement floor. We have done away with the mangers entirely. From our wide experience, during this winter, I would not have a manger in a cow stable if I could get it put in for nothing. We put the feed on the same level as the cow stands on, and we have found that they do not waste any more food, when fed in that way, than they did when it was fed in a manger. The question may be asked, "Will not the cows slip on the cement floor?" and the answer is, "Yes, they will, but by using plenty of shavings and bedding we avoid that to a large extent. I am very well pleased with the stable. We have a galvanized water trough the whole length of the stable. We have a gas pipe in front

of the cow to keep her from going against the water trough. We do not keep water in front of the cows all the time. We turn it in when required.

A MEMBER: Won't the cows get their bedding mixed with their food?

Prof. DEAN: Yes, to some extent, but they clean it up at each feed. We have put a system of ventilation (The King) in our stables this winter, and you may come into our stables at this time of the year and not experience any bad odor. Before we put in this ventilation system the odor would be very bad. Our stable is about 100 feet long and 35 feet wide. We have six inlets with an opening 8 inches by 10 inches, and a slide that you can draw up and hook on a nail. There are openings outside and inside. The air comes through just above the foundation and travels through the box to the ceiling and every other one of these ventilators goes to the centre of the passage-way between the cows, and every other one opens at the ceiling behind the cows. When the weather is very cold we shut the slide on the outside, but in all ordinary weather that slide is left open all the time. It is important in bringing in fresh air to the stable, that it should come in without causing a cold draft on the animals, and by delivering it near the ceiling we avoid that. We have two openings on the north side of the stable, two on the south, and one on the west and one on the east

A MEMBER: Why not have it come from the outside, at the top, and save all that boxing up the side of the wall inside?

Prof. DEAN: Because, with this method it does not make any difference whether the wind is blowing or not, it acts like a chimney, and we always have fresh air coming in, because the warm air in the stable causes these ventilators to draw.

A MEMBER: Why not have them all go to the centre?

Prof. DEAN: Because we want some fresh air in front of the cows and some behind.

Now, with regard to the out-let. We can keep the temperature of our stable at 54 degrees in cold weather. In the very cold week we had in February, it did not go below 48 degrees. To let out the foul air we have a slide within a foot of the floor of the stable, and another one near the ceiling. If it is ordinary weather then we have both the lower and the upper slide open, so that we take the foul air from the floor and also from the upper part of the stable. Suppose the stable gets too warm then we close the slide on the bottom and leave the top one open. By that means we take off the warm air rapidly and we can lower the temperature in the stable, in a very short time.

At first we did not know whether to take these outlets straight out through the roof or to take them up the top of the building, inside the roof. We finally decided to continue the box right up to the ridge of the roof, to the ventilators on the top of the barn.

A MEMBER: How is the outlet at the top?

Prof. DEAN: It goes right straight up.

Q. Is there a cover on the top of it?

A. Yes, it has a patent ventilator on the top

Q. Anything to create a draft?

A. Nothing special.

The last place I usually go at night after leaving the dairy is the stable, and the first thing I used to hear when getting to my house was, "Oh, you

have been in the cow stable;" since we have put in this system I hear very little complaint on this score.

The outlet shaft is the same size as the inlet. The box is made of ½ inch lumber with tar paper between, which tends to prevent dripping in the stable. The cost of lumber and labor was $100 and the ventilators cost $9.00 a piece, making a total of $136. I think we have never expended $136 on the Agricultural College with better results than we have had from this system of ventilation.

The labor of milking cows is an important factor in economical milk production. I believe the milking of cows by machinery has been satisfactorily solved. Three weeks ago I visited barns in the State of New York where they are using milking machines. They put a piece of rubber on the cow's teat and then they remove the air from the rubber by means of suction pumps and in one of the stables I visited where they had sixty cows, one man was milking from thirty-two to thirty-six cows twice a day, and he does the work in an hour and a quarter to an hour and a half. I believe the time is not far distant when milking machines will be as common as binders on our farms.

A MEMBER: What power do they use?

Prof. DEAN: On one farm they have a one horse electric motor and on another farm they were using a three horse power gasoline engine.

The time is not far distant when we shall have electric wires running along the country roads and the farmer will be able to have a wire run into his barn and will get power to run all his machinery, and it will do away with a great deal of the present drudgery on our farms.

A MEMBER: What do these milking machines cost?

Prof. DEAN: At the present they are very expensive. They cost $400 to $500. In ten years they will cost much less. I can remember the time when the binders cost $400 to $500.

POSSIBILITIES OF DAIRY IMPROVEMENT—TESTING ASSOCIATIONS IN DENMARK.

By D. DRUMMOND, Ottawa.

I think Prof. Dean has already touched on one of the greatest possibilities in dairying when he told us about the milking machine. As our time is limited and as he touched on a great deal that I am to speak about I will be very brief. It is not necessary at this meeting to say anything about the importance of this industry, at the same time we need to look at both sides of the question; because dairying in some of the sections of this country is in a critical position. A great many of the farmers throughout the country are saying, "There is no money in producing milk for the purpose of sending to cheese and butter factories." Now let us look at that question a little and see what we are producing. Figure up the last census as closely as we can and we find that the average production of the cows of this Dominion is about 115 lbs. of butter per annum, and any dairyman here can calculate for himself and say if 115 lbs. of butter per annum is quite enough to pay him for the keep of the cow. Put it at the best price you

can get for your butter, 18c a pound, and it only gives you $20.70 and you all know that that sum will not pay for the feeding of a cow for a year, and when we find that is the average there must be a great many below that figure. We know that there are many herds in this country and in the United States producing more than that. Last year under the supervision of the Dairy Commissioner they started what they call a cow census at Cowansville in the Province of Quebec. That is strictly a dairy district and they found that there was a great deal of difference in the dairy herds of that section. One herd produced an average of only 85 lbs. of butter in the 150 days and another herd produced an average of about 250 lbs., and that shows there is a great deal of difference between the poor cows and the good cows.

The point I want to make is, how are we going to improve the production of milk and how are we going to reduce the cost of production? The other part of the dairy business has been improved, the makers of butter and cheese have been able to get together at Creamery Associations and Dairy Associations, and while these associations are nominally for farmers as well as for cheese makers, still the great majority of the people who take part in them are cheese and butter makers. These associations have done great work, and they have inspectors who travel all over the country and help on the good work, and I think it is along these same lines that we can look for improvement on the part of the producer. I will give you a few figures from some herds that will show you what can be accomplished. The ten best Guernseys produced an average of 13,298 lbs. of milk and 668 lbs. of butter; the ten best Jerseys produced an average of 830 lbs. of butter each; the ten best Shorthorns produced an average of 7,902 lbs. of milk and 391 lbs. of butter. The herd of the late Mr. Tillson of 65 cows produced an average of 9,353 lbs. of milk. Twenty Ayrshire cows, right near the City of Ottawa, gave an average of 374 lbs. of butter last year.

How do we know what our cows are doing in the country? We have no way of telling unless we test each individual cow, and I hope this work will be continued throughout the country. We must have good cows to breed from and I do not know of any better way that the average farmer can find out his best cows than by testing each individual; he should also weigh the feed so as to know what it is costing.

In 1892, Denmark was in just about the same position that we are in today, and the farmers of that country came to the conclusion that there was not much money in dairying and they looked around to see what they were going to do to improve the out-put, or increase the profit to each farmer and in that year they started testing associations. They started with two associations and tested about 300 cows and now the number of associations has risen to 367 and the number of cows tested was 142,447 or about 13 per cent. of the cows of the country. When they started these associations they were exporting to Great Britain somewhere about $19,000,000 worth of butter and at the end of eight years they were exporting about $29,000,000 worth from practically the same number of cows, and if they were able to increase their output by ten million dollars surely it is worth our while to take into consideration the system that was used in that country and see if we cannot establish it in this country.

As an illustration of the advantages that have been derived from this work in Denmark, let us examine the two years 1898-99 with 1902-03, a two-years' test is better than a one year's because one may be an unfavourable year. By examining the following table representing about 300 cows you will find an increase in 1902-03 over 1898-99 in milk of about 15 per cent. and of butter of 16 per cent., and although not shown in this table a decrease

in the cost of feed per hundred pounds of butter of from one-sixth to one-tenth.

Association Number.	1898-99.				1902-03.				Increase in Yield per Cow.		
	Cows in 365 days.	Lbs. Milk.	Per cent. Fat.	Lbs. Butter.	Cows in 365 days.	Lbs. Milk.	Per cent. Fat.	Lbs. Butter.	Lbs. Milk.	Percent Fat.	Lbs. Butter.
A.	249.7	7,151	3.37	268	303.3	7,827	3.44	299	676	0.07	31
B.	244.6	7,011	3.41	265	306.8	8,078	3.45	309	1,067	0.04	44
C.	333.2	6,995	3.35	260	286.2	7,730	3.45	296	735	0.10	36
D.	382.6	6,888	3.37	257	314.4	8,043	3.43	307	1,155	0.16	50
E.	310.3	6,874	3.40	259	323.1	8,185	3.44	314	1,311	0.04	55
F.	99 1	6,639	3.25	240	319.5	8,056	3.38	303	1,417	0.13	63
G.	258.3	6,449	3.33	239	183.0	7,955	3.33	294	1,506	.....	55
H.	499.1	6,387	3.49	249	418.8	6,371	3.35	236	16	—0.14	13
I.	318.5	6,374	3.49	248	255.8	7,768	3.37	290	1,394	—0.12	42
J.	432.0	6,355	3.24	228	414.7	7,440	3.35	276	1,085	0.11	48

They have been able to do that in Denmark and I can see no reason why we cannot do it in Canada. It cost them from 40 cents to 60 cents per cow to make the test and if it cost us $2 in this country I think it will pay and we will be able to kill off one half of the cows and keep only the good ones. Not one farmer in a hundred can tell you what his cows are doing. The Government of Denmark has voted thirty two thousand dollars a year to help on this work and that thirty two thousand dollars a year for ten years was a good investment because they increased their out-put by ten million dollars and they only invested three hundred and twenty thousand dollars. They hired a man at each creamery and that man had to go around and visit the farms at certain times and weigh and test the milk and to keep track of the food consumed as well and if we start that plan here we will find even if there are only ten or twelve patrons of the cheese factory willing to do it, these men will be able to show the other patrons in the factory what is being done and they will discuss their methods of feeding and in that way the good work will be spread.

A MEMBER: That will not be run by Government?

Mr. DRUMMOND: Oh, no, it should be run by the people. They tell us we should always breed from pure-bred bulls and certainly we want a good bull to head the herd. That is one of the principal things to look for, and how do we stand in this country in regard to that to-day? You cannot find much about any of the pure-bred bulls. They can give you a pedigree of registration and in that pedigree you will find that color is a distinguishing point. They do not tell you much about the milk production of his dam. To test the pedigree far enough back you might find a good animal a few generations back. We must get something more valuable in our pedigree if we want to continue in the business. Look at what they have done with Standard Bred trotters, where they have kept a record of their performances, and I think that we should start at once and keep some record in this country of the milk production of our pure-bred cattle. Seven days records have got a value, and thirty day records are a little better, but a yearly record is the only one that is of any use to the farmer or breeder, and I hope if we start anything of this kind in Canada that we will do it thoroughly. They can make large records by leaving the cow dry four or five months. I have seen a cow that milked four years without having a calf and you can see how easy it is to make some of these large records. I think the pure-bred cattle breeders ought to commence this work. You want something more than the mere fact of registration in a pure-bred animal. You should have some record of the dam and grand dam on both sides so as to help on in this work.

GRADING UP A DAIRY HERD.

By J. H. Grisdale, Agriculturist, Central Experimental Farm, Ottawa.

The question has been so extensively discussed by the two preceding speakers that there might not seem to be very much left to be said, and yet it is a subject one can discuss for hours and still have very much to say about it.

What I understand by grading up a dairy herd, is, improving that herd and getting them to uniform type and line of breeding and uniform quality. There are various ways of doing it and I do not think I need to impress upon you the importance of it or the necessity of it. The results that have been given by Mr. Drummond show you that there is room for improvement. The herds of this country need to be graded up, and if you could see some of the reports which I have received during the last few years you would think there is very great room for improvement in the dairy herds, and if you could see the reports of the last census, that, also, would help to convince you that there is need of grading up the dairy herds.

First, we should know what the cows are doing, and keep the ones that are doing well and let the rest go. In order to do this you must keep records. The department will supply forms for this purpose, forms to keep records of the milk production and also of the food consumed. We shall be glad to send them out to all that apply for them and, in addition, we will sell you a spring balance for the purpose of weighing the food and milk, at a very low figure. We are selling them for $1.00 and $2.25. I do not think you can get them on the market in this country.

A Member: They are $9.00 here.

Mr. Grisdale: We can let you have one for $1. The one we use on the Experimental Farm cost $2.25 and they are a very excellent scale. They will weigh 60 lbs., and the $1.00 one will weigh 40 lbs. The forms we send out are for use by weeks or months, just as you please, and each form is for sixteen or twenty-four cows.

There is certainly as much in the feed as there is in the breed. You can have a cow so badly bred for dairy purposes that the feed will go on her back instead of into the milk pail, no matter how well you feed her. And, on the other hand, if you do not give them sufficient feed they will not give the milk. I am thoroughly convinced that the great majority of our cows in this country are not well enough fed. From observations I have made, and from records I have seen, and from experiments I have conducted, I am convinced that the cows of this country are not well fed. The other day in Quebec I had an opportunity of looking at three or four Ayrshire cows that had been prize winners at some of the Quebec fairs when they were in condition and had been considered good milkers. They had been bought by a man who considered himself a good dairy man and they had been fed according to his ideas of feeding and had simply gone to rack and ruin; they were not giving more than three-quarters of the amount of milk they should have given and were in bad shape. That kind of feeding is never profitable and if we are going to make a success of dairying we must learn to feed well.

Yet it is just as unwise to over-feed as not to feed enough, and therefore we must study the requirements of our cows. If we weight the milk every day we know just what the cows are doing, and if we find that by giving our cow four pounds of meal a day, she will give us 25 lbs. of milk, and if we increase the ration to 6 lbs. of meal we still get only 25 lbs. of milk then we know it is not paying to give that increase. Then again the weighing of the milk will teach us the best conditions under which to keep your cows.

Every variation from what might be called normal conditions will show in the yield of milk, hence it is undoubtedly one of the best helps towards grading up a dairy herd than can be undertaken. I could cite many cases of men in this country who have made wonderful progress aided largely by keeping records of their cows, for these records are now being kept all over Canada. One man writes me that he has more than doubled his dairy returns in 3 years by selection of cows and improvement in feeding due to guidance of daily dairy records.

I know of one man who raised the returns of his herd from $35 per cow in 1900 to $70 per cow in 1903, and although prices were low in 1904 they still averaged over $60 per cow, while neighbors of this man under similar conditions, but who did not attempt improvement, are practically where they were four years ago. Their cows are still giving only from $20 to $35 worth of milk in a year, which kind of dairying does not pay. To succeed, you must have good cows and then be sure that you feed them well.

In an experiment conducted last fall we found that by feeding ensilage and roots in the ration, we decreased the cost of the ration and increased the returns in milk. A cow usually falls off in the milk flow after the first six weeks at the rate of 10 per cent. per month. The cows that received dry ration, hay and straw and meal went down 15 per cent. per month in the milk flow, but the same cows as soon as they were put on a succulent ration went up instead of down.

A MEMBER: The same amount of meal?

Mr. GRISDALE: The same amount of meal, but we decreased their clover hay and added roots and ensilage giving them about 40 lbs. a day of a mixture of 50 lbs. roots, 100 lbs. ensilage and 5 lbs. straw. Now as to breeding; do not run away with the idea that because a bull is a registered bull he is a good one. Rarely, if ever, is a grade bull any good, but every bull that is registered is not a good bull. Good bulls come from good cows and from good grandams and from good sires. Get a bull from a cow that is giving from 50 to 100 lbs. of milk a day and you will most likely get a good bull, but if you get a bull from a cow that is giving from 25 to 30 lbs. a day, you will get a bad one.

A MEMBER: Would it not be possible to get that kind of a bull from a grade?

Mr. GRISDALE: Yes, but the bull would not be effective. If you breed cows for generations for a certain peculiarity, that peculiarity gets fixed on the strain, and the animals from that kind of breeding have the peculiarity so strongly marked that they leave it on their get. The grade is a little of the Holstein or a little of the Ayrshire or Durham or Jersey, and you cannot tell which way the bull from her is going to go.

Q. Do you get better results from feeding the meal dry or wet?

A. We find we get better results from feeding meal dry rather than wet. There is less labor and you can feed the meal so that it will be better digested and I think there is greater economy in feeding it that way.

Q. If you are feeding dry hay would it not be better to feed the grain wet?

A. Possibly, I think that is probably the source of the old idea that you must feed the grain wet. We find the best way is to take the ensilage and roots and put the meal on top and give it a stir.

REPORTS ON EXHIBITS.

CATTLE.

By A. W. Smith, Maple Lodge.

Those attending the Eastern Ontario Live Stock Show this year had a good opportunity of comparing the desirable type of beef cattle with that not so desirable. The splendid lot of young things shown in the heifer classes by Senator Edwards and the choice young steers brought out by Jas. Leask, give a good idea of the possibilities of paying results from good breeding and feeding. On the other hand there were specimens showing good feeding, but the breeding was not good for high or profitable development along beef lines; the thinness of flesh indicating the blood of some of the dairy breeds in immediate ancestory. For profit to the producer of steers or heifers for the block from the dairy breeds great assistance can be derived from a cross of one of the beef breeds, and in using the Shorthorn, very little of the good milking qualities of the herd need be lost, but it requires more than one cross of beef blood to give that thickness and mellowness of flesh so diligently sought by an expert judge. Although the cattle exhibit was the best that has been made at any of the meetings of the Eastern Ontario Live Stock Show, it is regrettable that more of the farmers of Eastern Ontario do not prepare some of their cattle for competition.

In the Shorthorn cow section splendid type was shown and two beautiful heifers from the same herd won 1st and 2nd in the two year old section. The yearling section gave the judges more trouble. All the heifers came from the Rockland herd. The first was easy, a handsome, smooth, thick, well-finished heifer. The second prize went to a roan with very thick mellow flesh, and the third to a heifer of the low down easy matrony kind, but not so smooth as the others. One looking on from the beef side might question the decision of the judges, but when the opportunity of handling came the reason was easily evident in the quality of flesh.

The exhibit in Shorthorn steers was fair, but all were lacking in finish. All of these shown came from the Guelph district, and were of good type but needed more feeding.

Neither Herefords nor Angus were shown, but Col. McCrae showed some Galloways that had not quite enough flesh to appear to good advantage.

The Grade Class had a lot of good things. Mr. Jas. Leask had a few very choice steers, getting 1st in the two-year old section with a good thick steer, but just a little plain. Mr. Scott, of Fergus, had a fairly good but unfinished steer, and the 3rd went to Thos. Graham, Mosgrove, for a steer that had evidently been well fed and was not lacking in the indications of beef blood, but was thin in flesh and lacking in quality of touch.

In the yearling steer section was seen the champion of the show, Mr. Jas. Leask's red steer, which was placed third at Guelph, much against the opinion of many good judges who thought he should have been higher up. However, his improvement since that time indicates that there will be a lot of good ones out next year if he does not take a higher award; thick, smooth, and mellow without any softness from end to end, his lines almost perfect and his coat is that soft and furry hair in abundance to suit the most exacting feeder. Nor were the second and third winners inferior, yet far away behind the first.

In the section for cows, J. Wilson & Sons had a very ripe, well fed, three year old heifer, showing good breeding and quality, and Jas. Leask showed

some good things in the sections for heifers two years and under three and that for heifers under two years.

Jas. McQueen, Fergus, had a good lot of three in the Export Steer section. They were not quite finished and one of them showed an inclination to roll somewhat on the ribs and was hard to the touch, but although they were a fairly good representation of the profitable export steers Mr. Leask's entry was too young, not finished and not uniform, and while each should develop into a good steer, they are not at the time export steers. The third and fourth prize lots were thin in flesh and it woud be hard to imagine them developing into anything fit for export.

SHEEP.

By John Jackson, Abingdon, Ont.

There were some excellent specimens that would have been a credit to their exhibitors had they been shown at Chicago or Guelph. There were others that were a credit neither to the exhibitors nor to the breeds which they represented. In the Cotswold classes there were a few lambs of fair quality. Lincolns and Leicesters that have formerly been well represented at this show were conspicuous by their absence. Oxfords were few in number, and not well brought out. Hampshires and Suffolks were very poor representatives of the breed, not at all in show shape. The Shropshire lambs were an exceedingly fine lot of large scale, and were brought out in the pink of condition. Senator Edwards had a string such as are seldom brought out by any exhibitor. They carried the marks not only of good breeding, but those of the "good shepherd" as well. Southdowns were few in number, but good in quality, and fairly well brought out. Dorset Horns, not a large show, but in quality were quite up to the average. Among the grades, there was one particularly deserving of notice, a cross between a Southdown and a Shropshire, an easy first both alive and dressed. This carcass brought in open competition, better than 29 cents per lb.

SWINE.

By G. B. Hood, Guelph.

The exhibit of Export Bacon Hogs at the Eastern Ontario Live Stock and Poultry Show was quite an advance over the previous years.

In pure breds the Yorkshires took the lead in point of numbers, and with one or two exceptions were a smooth even lot. The Tamworths were nicely finished though not as even in size as the Yorkshires. Only one lot of Berkshires were shown, and while they were a very fine lot from a Berkshire standpoint, they were a little too thick and fat for Wiltshire bacon. The Grade bacon hogs were all of the Yorkshire type, and while some of them were a little deficient in length, the lot that took first place were particularly fine, even in size and finish, and had they been entered for the Sweepstakes would have stood a good chance of carrying off the honors.

Several of the lots shown were, in the opinion of the judges, a little overweight which accounted for their not getting better places on the prize list.

POULTRY.

By Sharpe Butterfield, Windsor.

Ottawa Show was a large show and a good one, of really grand birds in most classes, much better than I would expect at this late season of the year. Light Brahma class was nearly as large as the Ontario, and the quality was quite equal. No middling birds had much chance here to win even a third prize. Dark Brahmas not so numerous, but I did notice that most of the winners had World's Fair leg bands attached. The winners were very high class birds. Buff Cochins a very creditable class, but the lateness of the season was somewhat against them, for we find the delicacy of buff required to win at our early shows fades considerably in three months' time; hence birds do not look as well now as in December. Partridge Cochins, just enough in old birds to let visitors and exhibitors see some very fine specimens; black, females better than the males. White Cochins, one very good pair. Langshans a good class of good birds, cocks and cockerels; hens and pullets; all the prizes fell on really good birds. White Leghorns, a really hot class, and in one or two instances the awards did not seem to satisfy the critics. Of course, we admire critics, because it shows they have a strong interest in looking over the awards. Notably in the class for cocks, they wondered why by all odds the best cock did not get a mention, and a brother judge said to me, "You left out the best cock." I said, "Yes; the bird has had butter color put on his legs, and the owner seems to have been trying to get the coloring off, but the tell-tale is there." This class was exceptionally good. Brown Leghorns good in numbers and nothing really high class, only two or three cockerels. One cockerel was grand all over except he carried his tail a little high.

Buff Leghorns. A young man showed a cockerel and about four pullets which would have scored an average of 94 points, but some of those smart Alecks had told him how to have yellow legs. The birds were good in leg color, but he used sulphur and olive oil, and it showed what had been done, for between or at junction of scales was the telltale, so we had to leave the five birds out for coloring of legs.

The Game and Game Bantam class was very good in quality. I noticed an awfully good black red there and was told he was first cockerel at our Ontario in December, but the care he had had seemed to make him grow quite large, and he had to give way to smaller birds of just about same quality. Females in this class were grand, especially strong in red Pyle Game Bantams. Brown Red females were good, and so were the duckwing classes. In large Games some grand colored birds were shown in black red and brown red females, also in pyles and duckwings. Indian Game winners. I noticed several World's Fair leg bands and they were a very creditable class of birds. Ornamental Bantams were as hot or hotter than they were at Guelph. Black Rose Combs a large class, and some of the first prize birds there had to win second or third prizes. Silver and Golden Sebrights were heavy classes, and lots of good ones did not get a third place. Japanese Bants were surely a credit to Japan. I noticed one or two of the males just about as good as the generals who are leading the armies against Russia. The first prize cockerel and first prize pullet in white Japanese it would not be out of place to call the cockerel Oyama, and the first prize pullet Mrs. Oyama, for surely they were a great pair of beauties. Buff and white Cochins much larger classes than our Guelph Ontario Show, and have no doubt the winners at Guelph did most of the winning here, but it was not quite so easy for them. In

fact, all classes I judged were very good in quality, and would not have been discreditable for our Western Ontario.

By Newton Cosh, Port Dover.

White Minorcas. Cocks, two. First has fairly good head and of fair type, but away off in color and condition. Hens, two. First a good, all round one, a shade small. Second has better bone but it is rough in comb and white in face. Cockerels, two. First quite good in type and head points, but away off in color and finish. Pullets, two. First up in weight and a splendid all round specimen, but like many others at this late season of the year, was not in the best of condition. Second pullet another large one but carries tail a bit too high. Black Minorcas, cocks, a good one, in very bad condition. Hens, thirteen, with very poor ones in the lot. First large and of correct type, rather poor comb, lobes nice shape but smoky in color. Second, better in comb and color of lobe, but has white in face. Third, a grand colored one, fair comb and lobe, also has white in face, but fails slightly in shape of back, breast and tail. Cockerels, fourteen. First, a grand one, a great poser, good comb and excellent lobe, with a great furnished tail and wonderful color. Second, a fine, big, eight pound bird; comb a bit large but correct in shape; he lacks in finish only to first. This fellow should develop into a grand cock bird. The same description will apply to third, except comb, which has too many spikes. Pullets, fourteen. First has splendid head gear and color of plumage, but not equal to second on shape. The former became injured in some way after judgment had been passed upon her, which took all of the winning qualifications out of her. Second, rather heavy in comb, good lobes, wattles somewhat wrinkled; size and shape O.K. Third loses to second in breast shape.

Andalusians. Cocks, four. First a large typical fellow, rather coarse in comb and weak in color of wing and tail. Second very much the same. Third only fair. Hens, five. First neat comb and head, nicely laced throughout, but not as clean and blue in color, tail feathers badly broken. Third a fair hen only. Cockerels, five. First large, but like first and second cocks, too coarse in head gear, breast a bit cloudy in color but strongly laced. Second better comb and head, nice color, but carries tail too high. Third, lost track of, card was gone. Pullets, four. First nicely laced breast, fails on back. Second had very heavy black lacing, ground color splashy and dirty.. Third better in head and breast, but fails in back lacing.

Black Spanish. Cock, one. Comb over, fairly good length of face and moderately smooth, grand color of plumage. Hens, two. First, grand, long smooth face. excellent comb. Second loses slightly on face. One cockerel, fair in comb and face, color good. Pullets, two First has almost perfect comb, good face and a rare good one all through. Second of good average quality.

Buff Orpingtons. Cocks, two. First has splendid comb and that true Orpington type; surface color good, has some white in wing. Second a larger bird, loses in comb and shape, has nice golden buff color. Hens, six. First a large shapely one, possessing grand color, except tail, which shows up rather dark. Second and third very much the same type but lose in color. Cockerels, six. First, comb turned slightly at back, sound in color, though neck is a few shades darker than the remaining sections; good clean legs. Second almost disqualified for white in lobe; shape very good, but too young yet. Third a better bird but lost in condition; had come through a feather pulling contest. Pullets, thirteen. First, good all the way. Second a very

neat head, good color, but a little too high up. Third very much the same. A.O.V. Orpingtons. One cock, black, a fairly good bird, fails in breast and leg shape. No hens. Cockerels, three. First, black, excellent type, good average head, color good, but slightly faded. Second, white, a very fair bird but small. Third excellent color, but cut five and a half points on weight. Pullets, four. First, black, a good one, with a nicely shaped back. Second, bad comb and loses in back shape. Third, white, very good for this new variety.

Thirty-three black Minorcas and seventeen buff Orpingtons made up the selling classes allotted to me, all of which were scored, with some very good value in both classes.

FINANCIAL STATEMENT OF THE EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

For the Year Ending December 31, 1904.

Receipts.		Expenditures.	
Cash on hand from previous year, as per last report	$1,598 47	Cash paid for prizes	$3,173 50
Legislative Grant	3,000 00	Secretary's salary	300 00
Entry fees	873 35	Directors' fees and expenses	282 10
Gate receipts	372 80	Postage and stationery	146 42
Sale of Carcasses	521 26	Printing	205 25
Prizes paid by Poultry Association	1,470 50	Advertising	180 00
Holstein-Friesian Association Grant	20 00	Judges' and Lecturers' exp's.	127 70
Advertisement in Prize List	50 00	Typewriting and office work	258 50
Miscellaneous items	11 13	Telegraph, telephone, express	14 95
		General wages at Show	219 73
		Reporting meetings	35 00
		Fitting, heating and lighting building	466 07
		Straw	36 02
		Entry fees credited to Poultry Association	655 35
		Refund entry fees	31 00
		Paid for carcasses sold	521 26
		Miscellaneous items	12 00
		Cash on hand	1,252 66
	$7,917 51		$7,917 51

Audited and found correct.
(Signed) J. M. Duff, Auditor.

J. C. Smith, President.
A. P. Westervelt, Treasurer.

LIST OF PRIZE WINNERS, AT THE EASTERN LIVE STOCK AND POULTRY SHOW, OTTAWA, 1905.

CATTLE.

Shorthorns.

Steer, 2 years and under 3.—1st and 2nd, Jos. Armstrong, Speedside.
Steer, 1 year and under 2.—1st Geo. Armstrong, Speedside.
Steer, under 1 year.—Pritchard Bros., Fergus.
Cow or Heifer, 3 years and over.—1st, W. C. Edwards & Co.; 2nd, Jas. Leask.
Heifer, 2 years and under 3.—1st and 2nd, W. C. Edwards & Co., Rockland.
Heifer, under 2 years.—1st, 2nd, 3rd and 4th, W. C. Edwards & Co., Rockland.

Galloways and Devons.

Steer or Heifer, 2 years and under 3.—1st, D. McCrae, Guelph.
Steer or Heifer, 1 year and under 2.—1st, D. McCrae, Guelph.
Steer or Heifer, under 1 year.—1st and 2nd, D. McCrae, Guelph.
Cow or Heifer, 3 years and over.—1st and 2nd, D. McCrae, Guelph.

Grades or Crosses.

Steer, 2 years and under 3.—1st and 3rd, Jas. Leask, Greenbank; 2nd, D. B. Scott, Fergus; 4th, T. J. Graham, Mosgrove.
Steer, 1 year and under 2.—1st and 2nd, Jas. Leask, Greenbank; 3rd, Jas. Lindsay, Fergus; 4th, Lewis Armstrong, Fergus.
Cow or Heifer, 3 years or over.—1st, Jas. Wilson & Sons, Fergus; 2nd, Jas. Leask, Greenbank; 3rd, R. Reid & Co., Hintonburg.
Heifer, 2 years and under 3.—1st, Jas. Leask, Greenbank; 2nd, Geo. Armstrong
Heifer, under 2 years.—1st and 2nd, Jas. Leask, Greenbank.

Dressed Carcasses.

Pure-breds.—1st and 2nd, Jos. Armstrong, Speedside; 3rd, D. McCrae, Guelph.
Grades.—1st, D. B. Scott, Fergus; 2nd, Jas. Lindsay, Fergus; 3rd, Jas. Leask.

Export Steers.

Export Steers, best three.—1st, Jas. McQueen, Elora; 2nd, Jas. Leask, Greenbank; 3rd and 4th, T. J. Graham, Mosgrove.
Grade Steer, sired by pure-bred Shorthorn Bull.—1st and 2nd, Jas. Leask, Greenbank; 3rd, Jas. McQueen, Elora.

SHEEP.

Cotswolds.

Ewe, under 1 year.—1st, 2nd and 3rd, D. McCrae, Guelph.

Oxfords.

Ewe, under 1 year.—1st and 2nd, J. A. Richardson; 3rd and 4th, J. A. Jull, Burford.

Shropshires.

Wether, under 1 year.—1st, Lloyd-Jones Bros., Burford; 2nd, 3rd and 4th and 5th, W. C. Edwards & Co., Rockland.
3 Wethers, under 1 year.—1st and 2nd, W. C. Edwards & Co., Rockland; 3rd, Lloyd-Jones Bros., Burford.
Ewe, under 1 year.—1st, 2nd and 3rd, W. C. Edwards & Co., Rockland; 4th and 5th, Lloyd-Jones Bros., Burford.
Dressed Carcass Wether, under 1 year.—1st, Lloyd-Jones Bros., Burford; 2nd and 3rd, W. C. Edwards & Co., Rockland.

Southdowns.

Wether, under 1 year.—1st, Telfer Bros., Paris.
Ewe, under 1 year.—1st, Telfer Bros., Paris.

Dorsets.

Wether, 1 year and under 2.—1st, R. H. Harding, Thorndale.
Wether, under 1 year.—1st and 2nd, R. H. Harding, Thorndale.
Ewe, under 1 year.—1st, R. H. Harding, Thorndale.
Dressed Carcass Wether, under 1 year.—1st and 2nd, R. H. Harding, Thorndale.

Hampshires and Suffolks.

Wether, 1 year and under 2.—1st, Telfer Bros., Paris.
Wether, under 1 year.—1st, 2nd and 4th, Jas. Bowman, Guelph; 3rd, Telfer Bros.
Ewe, under 1 year.—1st, Telfer Bros., Paris; 2nd, Jas. Bowman, Guelph.
Dressed Carcass Wether, under 1 year.—1st, Telfer Bros.; 2nd and 3rd, Jas. Bowman.

Grades or Crosses.

3 Wethers, under 1 year.—1st, Lloyd-Jones Bros., Burford.
Wether, under 1 year.—1st and 2nd, Lloyd-Jones Bros., Burford.
Dressed Carcass Wether, under 1 year.—1st, Lloyd-Jones Bros., Burford.

DAIRY TEST, EASTERN ONTARIO LIVE STOCK AND POULTRY SHOW.

Class 26, Section 1, Ayrshire Cow, 36 months and over.

Name.	Owner.	Lbs. milk.	Per cent. fat.	Lbs. fat.	Lbs. solids not fat.	Points for day's milk.	Points for fat.	Points solids not fat.	Total points.
1. Clarissa	J. G. Clark, Ottawa	88.1	3.6	3.17	8.23	.....	63.4	32.9	96.3
2. Ethel Ayr	J. G. Clark, Ottawa	76.	3.4	2.6	6.9	.....	52.	27.6	79.6
3. Polly of Woodruff	J. G. Clark, Ottawa	68.1	3.3	2.24	6.04	10	44.8	24.1	78.9
4. Maple Cliff Lady	R. Reid & Co., Hintonburg	59.6	3.6	2.14	5.64	.....	42.8	22.5	65.3
5. Jess of Maple Cliff	R. Reid & Co., Hintonburg	46.2	4.	1.84	4.29	10	36.8	17.1	63.9

Class 26, Section 2, Ayrshire Heifer, under 36 months.

1. Bessie of Maple Hill	J. G. Clark, Ottawa	63.1	3.8	2.39	5.97	.....	47.8	23.8	71.6
2. Maple Cliff Blossom	R. Reid & Co., Hintonburg	61.	3.4	2.07	5.61	.....	41.4	22.4	63.8

Class 27, Section 1, Holstein Cow, 36 months and over.

1. Audrey	Neil Sangster, Ormiston, Que.	116.2	2.8	3.25	9.58	2.4	65.	38.3	105.7
2. Jane	G. A. Spratt, Billings Bridge	91.9	3.6	3.3	7.99	5.	66.	31.9	102.9

Class 27, Section 2, Holstein Heifer, under 36 months.

1. Madeline	Neil Sangster, Ormiston, Que.	90.2	2.7	2.43	7.68	.....	48.6	30.7	79.3

Class 29, Section 1, Grade Cow, 36 months and over.

1. Carrie	G. A. Spratt, Billings Bridge	89.7	4.2	3.76	8.88	.....	75.2	35.5	110.7
2. White Face	R. Reid & Co., Hintonburg	57.2	3.7	2.11	5.3	6.4	42.2	21.4	70.
3. Mollie	R. Reid & Co., Hintonburg	57.	3.4	1.93	5.21	.....	38.6	20.8	59.4

Class 29, Section 2, Grade Heifer, under 36 months.

2. Spot	R. Reid & Co., Hintonburg	49.	3.4	1.66	4.5	.....	33.2	18	51.2

SWINE.

Berkshires.

Barrow, under 6 months.—1st, R. Reid & Co.; 2nd, Wm. Wilson, Brampton.
Sow, 6 months and under 9.—1st, R. Reid & Co.; 2nd, 3rd and 4th, Wm. Wilson.
Sow, under 6 months.—1st, 2nd and 3rd, Wm. Wilson; 4th, R. Reid & Co., Hintonburg.

Yorkshires.

Barrow, 6 months and under 9.—1st, 2nd and 3rd, J. E. Brethcur, Burford.
Barrow, under 6 months.—1st, 2nd and 3rd, J. E. Brethour, Burford.
Sow, 6 months and under 9.—1st, 2nd and 3rd, J. E. Brethour, Burford; 4th and 5th, Jas. Wilson & Son, Fergus.
Sow, under 6 months.—1st, 2nd and 4th, J. E. Brethour, Burford; 3rd and 5th, Jas. Wilson & Sons, Fergus.

Tamworths.

Barrow, 6 months and under 9.—1st, 2nd and 4th, R. Reid & Co., Hintonburg; 3rd, A. M. Stewart, Dalmeny.
Barrow, under 6 months.—1st, 2nd and 3rd, R. Reid & Co., Hintonburg.
Sow, 6 months and under 9.—1st, 2nd and 5th, J. A. Richardson, South March; 3rd and 4th, R. Reid & Co., Hintonburg.
Sow, under 6 months.—1st, 2nd and 3rd, R. Reid & Co., Hintonburg.

Grade or Cross.

Barrow, 6 months and under 9.—1st, 2nd and 3rd, H. Stuart, Burford.
Barrow, under 6 months.—1st, 2nd and 3rd, H. Stuart, Burford.
Sow, 6 months and under 9.—1st, 2nd and 3rd, H. Stuart, Burford.
Sow, under 6 months.—1st and 2nd, H. Stuart, Burford; 3rd and 4th, Wm. Wilson.

Export Bacon Hogs.

3 Pure Breds.—1st, 2nd and 4th, J. E. Brethour, Burford; 3rd, and 7th, R. Reid & Co., Hintonburg, 8th, A. M. Stewart, Dalmeny; 9th, Jas. Wilson, Fergus; 6th, Wm. Wilson, Brampton.
3 Grades.—1st and 2nd, H. Stuart; 3rd, Wm. Wilson, Brampton; 4th, H. Stuart.
Three best.—J. E. Brethour, Burford.

Bacon Hogs—Dressed Carcasses.

Dressed Carcasses, 3 pure breds.—1st, 4th, 6th and 7th, J. E. Brethour, Burford; 2nd and 3rd, R. Reid & Co., Hintonburg; 5th, A. M. Stewart, Dalmeny.
Dressed Carcasses, 3 grades.—1st, 2nd and 3rd, H. Stuart, Burford.
Dressed Carcasses, three best.—J. E. Brethour, Burford.

SEED GRAIN DEPARTMENT.

Fall Wheat, 2 bush. sample.—1st, C. R. Gies, Heidelberg; 2nd. Wm. Murray, Avening.
Spring Wheat, 2 bush. sample.—1st, S. J. Woods, Metcalf; 2nd, Wm. Mulligan, Merivale; 3rd, F. E. Caldwell, Manotick; 4th, D. Cumming, Russell.
Banner Oats, 2 bush. sample.—1st, Jno. Wilson, Marsville; 2nd, Geo. Boyce, Merivale; 3rd, Dugald Cumming, Russell; 4th, Wm. J. Savage, Stittsville.
Oats, any other variety white, 2 bush. sample.—1st, Geo. R. Bradley; 2nd, S. J. Woods, Metcalf; 3rd, Dugald Cumming, Russell.
Barley, six-rowed, 2 bush. sample.—1st, Wm. Mulligan, Merivale; 2nd, Edward Boyce, Merivale; 3rd, D. Cumming, Russell; 4th, Geo. Boyce, Merivale.
Small Field Peas, 2 bush. sample.—2nd, P. Sullivan, Waller.
Potatoes, Rose Type, 1 bush. sample.—1st, Geo. Bradley, Carsonby.
Timothy Seed, 1 bush. sample.—1st, D. Cumming, Russell; 2nd, P. Madden, Jockvale.

POULTRY.

Brahmas, Light.

Cocks, 5.—1st, W. E. Thom, Morrisburg; 3rd, Dr. Pritchard; 4th, John A. Belford.
Hens, 8.—1st and 4th, John A. Belford; 2nd, W. E. Thom; 3rd, Dr. Pritchard.
Cockerels, 9.—1st, 3rd and 4th, W. H. Snelling; 2nd, John A. Belford.
Pullets, 7.—1st, 2nd and 3rd, John A. Belford; 4th, Chas. LaRose.

Brahmas, Dark.

Cocks, 2.—1st and 2nd, L. C. Sage.
Hens, 3.—1st and 2nd, L. C. Sage; 3rd, B. Wright.
Cockerels, 3.—1st and 2nd, L. C. Sage.
Pullets, 2.—1st and 2nd, L. C. Sage.

Cochins, Buff.

Cocks, 3.—1st and 2nd, A. W. Bell.
Cockerels, 3.—1st, J. H. Williams; 2nd and 3rd, A. W. Bell.
Pullets, 3.—1st, J. H. Williams; 2nd, A. W. Bell; 3rd, A. W. Bell.

Cochins, Partridge.

Cocks, 2.—1st, F. Wales; 2nd, R. Oke.
Hens, 2.—1st, R. Oke; 2nd, F. Wales.
Cockerels, 2.—3rd, F. Wales.
Pullets, 2.—1st, F. Wales.

Cochins, Black.

Cocks, 2.—1st, Chas. LaRose.
Hens, 2.—1st and 2nd, Chas. LaRose.
Pullets, 2.—1st and 2nd, Chas. LaRose.

Cochins, White.

Cocks, 1.—1st, F. Wales.
Hens, 1.—2nd, F. Wales.

Langshans.

Cocks, 5.—1st, R. McCurdy; 2nd, Garland & Gilchrist; 3rd, R. McCurdy; 4th, Ottawa Poultry Yards.
Hens, 10.—1st, B. Wright; 2nd, E. R. Frith; 3rd, Ottawa Poultry Yards; 4th, R. McCurdy.
Cockerels, 3.—1st and 2nd, R. McCurdy.
Pullets, 2.—1st and 2nd, R. McCurdy.

Barred Plymouth Rocks.

Cocks, 4.—1st, J. E. Fidler; 2nd, F. W. Beckstead; 3rd, Chas. LaRose; 4th, S. Short.
Hens, 10.—1st, S. Short; 2nd and 3rd, J. A. Lambertus; 4th, Garland & Gilchrist.
Cockerels, 14.—1st, F. A. James; 2nd, J. A. Lambertus; 3rd, Garland & Gilchrist; 4th, J .E. Fidler; 5th, F. W. Beckstead.
Pullets, 10.—1st, F. W. Beckstead; 2nd, J. A. Lambertus; 3rd, J. E. Fidler; 4th, Ottawa Poultry Yards.

White Plymouth Rocks.

Cocks, 4.—1st, Walter Bromley; 2nd, Fred. A. Andrews; 3rd, F. Wales.
Hens, 7.—1st, 2nd and 3rd, Fred. A. Andrews; 4th, Walter Bromley.
Cockerels, 6.—1st, F. Wales; 2nd, Walter Bromley; 3rd, Fred. A. Andrews.
Pullets, 7.—1st, 2nd and 4th, Fred. A. Andrews; 3rd, F. Wales.

Buff Plymouth Rocks.

Cocks, 2.—1st, Ottawa Poultry Yards; 3rd, D. Cumming.
Hens, 3.—1st, Ottawa Poultry Yards; 3rd, D. Cumming.
Pullets, 4.—1st, Robt. A. Robertson; 2nd, Ottawa Poultry Yards; 3rd and 4th, D. Cumming.

Golden Laced Wyandottes.

Cocks, 3.—1st and 3rd, T. C. McInnis; 2nd, Fred. J. Blake.
Hens, 4.—1st, A. W. Graham; 2nd and 3rd, T. C. McInnis; 4th, Fred. J. Blake.
Cockerels, 5.—1st, T. C. McInnis; 2nd, A. W. Graham; 3rd and 4th, Fred. J. Blake.
Pullets, 5.—1st and 2nd, T. C. McInnis; 3rd, Fred. J. Blake; 4th, H. Warner.

Silver Laced Wyandottes.

Cocks, 4.—2nd, Fred. J. Blake; 3rd, Jas. A. Cokers; 4th, Wm. Trinnell.
Hens, 5.—1st and 2nd, Fred. J. Blake; 3rd, Jas. A. Cokers; 4th, T. C. McInnis.
Cockerels, 7.—1st, Fred. J. Blake; 2nd, Wm. Delary; 3rd, Jas. A. Cokers; 4th, Wm. Trinnell.
Pullets, 7.—1st, Jas. A. Cokers; 2nd, Wm. Delary; 3rd, Wm. Trinnell; 4th, Fred. J. Blake.

Buff Wyandottes.

Cocks, 3.—1st and 3rd, A. W. Graham; 2nd, Thos. F. McCabe.
Hens, 4.—1st and 3rd, Thos. F. McCabe; 2nd, A. W. Graham; 4th, T. C. McInnis.
Cockerels, 3.—1st, A. W. Graham; 3rd, Thos. F. McCabe.
Pullets, 3.—1st, J. E. Brethour; 2nd and 3rd, Geo. Higman; 4th, A. W. Graham.

White Wyandottes.

Cocks, 5.—1st, F. Wales; 2nd, J. R. K. Bristol; 3rd, T. C. McInnis; 4th, O. E. Culbert.
Hens, 13.—1st, O. E. Culbert; 2nd, Geo. Higman; 3rd, F. Wales; 4th, T. C. McInnis.
Cockerels, 17.—1st and 2nd, O. E. Culbert; 3rd, Wright Bros.; 4th, Geo. Lake; 5th, R. Fallis.
Pullets, 24.—1st, Geo. Higman; 2nd, O. E. Culbert; 3rd, J. R. K. Bristol; 4th, Wright Bros.; 5th, R. Fallis.

A. O. V. Wyandottes.

Cocks, 1.—1st, T. C. McInnis.
Hens, 4.—1st, L. C. Sage; 2nd, T. C. McInnis; 3rd and 4th, E. Rodier.
Cockerels, 2.—1st, L. C. Sage; 2nd, E. Rodier.

Black Java.

Cocks, 2.—1st, R. Oke; 2nd, W. H. Reid.
Hens, 3.—1st and 3rd, W. H. Reid; 2nd, R. Oke.
Cockerels, 2.—1st, R. Oke; 2nd, W. H. Reid.
Pullets, 3.—1st, R. Oke; 2nd and 3rd, W. H. Reid.

A. O. C. Javas.

Cocks, 1.—1st, R. Oke.
Hens, 2.—1st, R. Oke; 2nd, W. H. Reid.
Cockerels, 3.—1st, R. Oke; 2nd, W. H. Reid.
Pullets, 3.—1st, R. Oke; 2nd and 3rd, W. H. Reid.

Rhode Island Reds.

Cocks, 2.—1st and 2nd, Ottawa Poultry Yards.
Hens, 4.—1st, 2nd and 3rd, Ottawa Poultry Yards.
Cockerels, 4.—1st, S. W. D. Frith; 2nd, S. W. D. Frith; 3rd, Ottawa Poultry Yards.
Pullets, 4.—1st, S. W. D. Frith; 2nd and 3rd, Ottawa Poultry Yards.

Black Red Game.

Cocks, 2.—1st, Jas. Morley; 2nd, B. Wright.
Hens, 2.—1st, Jas. Morley.
Cockerels, 1.—1st, Jas. Morley.
Pullets, 1.—1st, Jas. Morley.

Brown Red Game.

Hens, 1.—2nd, Telfer Bros. *Cockerels, 1.*—1st, Telfer Bros. *Pullets, 1.*—1st, Telfer Bros.

Duckwing Game.

Cocks, 1.—1st, Dr. J. H. Bastien.
Hens, 1.—1st, Dr. J. H. Bastien.

Pile Game.

Cocks, 1.—1st, Telfer Bros.
Hens, 1.—1st, Telfer Bros.
Cockerels, 1.—1st, Telfer Bros.
Pullets, 1.—1st, Telfer Bros.

Indian Laced Game.

Cocks, 3.—1st, Chas. LaRose; 2nd, Dr. Pritchard; 3rd, Dr. J. H. Bastien.
Hens, 7.—1st, Dr. Pritchard; 2nd, B. Wright; 3rd, Chas. LaRose.
Cockerels, 4.—1st, Chas. LaRose; 2nd, D. Cumming; 3rd, Dr. Pritchard.
Pullets, 6.—1st, Chas. LaRose; 2nd and 3rd, Dr. Pritchard.

A. O. V. Game.

Hens, 1.—1st, W. H. Reid.

Cockerels, 1.—1st, W. H. Reid.

Pit Game.

Cocks, 4.—1st, Alva Armstrong; 2nd and 3rd, E. H. Benjamin.
Hens, 5.—1st and 3rd, E. H. Benjamin; 2nd, Alva Armstrong.
Cockerels, 4.—1st and 3rd, E. H. Benjamin; 2nd, R. E. McKinstry.
Pullets, 3.—1st, 2nd and 3rd, E. H. Benjamin.

White S. C. Leghorns.

Cocks, 8.—1st, John I. Gill; 2nd, Thos. S. Coouch; 3rd, W. Pranschke; 4th, Ernest Gromoll.
Hens, 8.—1st, John I. Gill; 2nd, Thos. S. Coouch; 3rd, Jas. McGurran; 4th, Ernest Gromoll.
Cockerels, 12.—1st, F. Wales; 2nd, Ernest Gromoll; 3rd, W. H. Carleton; 4th, Belanger and Connors.
Pullets, 14.—1st, W. H. Carleton; 2nd, Thos. S. Cocuch; 3rd, F. Wales; 4th, John I. Gill; 5th, E. Gromoll.

Brown S. C. Leghorns.

Cocks, 8.—1st and 4th, Dewar Bros.; 2nd, W. L. Montgomery; 3rd, T. C. McInnis
Hens, 10.—1st, Dewar Bros.; 2nd and 3rd, W. J. Player.
Cockerels, 5.—1st and 2nd, Dewar Bros.; 3rd, D. Cumming; 4th, W. J. Player.
Pullets, 10.—1st, D. Cumming; 2nd and 3rd, Dewar Bros.; 4th, T. C. McInnis.

Black Leghorns.

Cocks 2.—2nd, W. M. Osborne.
Hens, 3.—1st and 2nd, W. M. Osborne.
Cockerels, 4.—1st and 2nd, W. M. Osborne; 3rd, A. G. H. Luxton.
Pullets, 4.—1st, 2nd and 4th, W. M. Osborne; 3rd, A. G. H. Luxton.

Buff Leghorns.

Hens, 3.—1st, W. Pillar; 2nd and 3rd, H. H. Clark.
Cockerels, 3.—1st, W. Pillar; 2nd, B. Wright.
Pullets, 5.—1st and 2nd, H. H. Clark.

R. C. Brown Leghorns.

Hens, 1.—3rd, Wm. Stewart & Son.

R. C. White Leghorns.

Hens, 1.—1st, W. Stewart.

Spanish.

Cocks, 1.—1st, J. H. Warrington.
Cockerels, 1.—1st, J. H. Warrington.
Hens, 2.—1st and 2nd, J. H. Warrington.
Pullets, 2.—1st and 2nd, J. H. Warrington.

Andalusians.

Cocks, 3.—1st and 2nd, Chas. LaRose; 3rd, John Gunning; 4th, W. P. Carswell.
Hens, 5.—1st, John Gunning; 2nd and 4th, Chas. LaRose; 3rd, F. Wales.
Cockerels, 5.—1st, Chas. LaRose; 2nd, Chas. LaRose.
Pullets, 4.—1st, F. Wales; 2nd, Chas. LaRose; 3rd, W. P. Carswell; 4th, John Gunning; 5th, Chas. LaRose.

Black Minorcas.

Cocks, 1.—2nd, Garland & Gilchrist.
Hens, 13.—1st and 3rd, E. R. Frith; 2nd and 5th, Ottawa Poultry Yards; 4th, G. A. McInnis.
Cockerels, 14.—1st, W. L. Montgomery; 2nd and 5th, Garland & Gilchrist; 3rd, B. Wright; 4th, L. A. Brill.
Pullets, 14.—1st, W. J. Bullock; 2nd, G. A. McInnis; 3rd, E. R. Frith; 4th, B. Wright; 5th, Garland & Gilchrist.

White Minorcas.

Cocks, 2.—2nd, W. M. Osborne. *Cockerels, 3.*—2nd, W. M. Osborne.
Hens, 3.—1st, 2nd and 3rd, W. M. Osborne. *Pullets, 2.*—1st and 2nd, W. M. Osborne.

Buff Orpingtons.

Cocks, 2.—1st, Walter Bromley; 2nd, A. W. E. Hellyer.
Hens, 5.—1st, 2nd and 3rd, A. W. E. Hellyer; 4th, S. W. D. Frith.
Cockerels, 6.—1st and 3rd, A. W. E. Hellyer; 2nd, Jos. A. Allan; 4th, Walter Bromley.
Pullets, 13.—1st and 3rd, A. W. E. Hellyer; 2nd, R. A. Robertson.

A. O. C. Orpingtons.

Cockerels, 3.—1st, J. L. Armstrong; 2nd, W. J. Annand; 3rd, John S. Allan.
Pullets, 4.—1st, J. L. Armstrong; 2nd, S. W. D. Frith; 3rd, W. J. Annand.

S. Grey Dorking.

Cocks, 2.—1st, W. H. Reid; 2nd, W. Stewart & Son.
Hens, 3.—1st, W. H. Reid; 2nd, W. Stewart & Son; 3rd, J. H. Warrington.
Cockerels, 5.—1st, A. G. H. Luxton; 2nd and 3rd, J. H. Warrington; 4th, W. Stewart & Son.
Pullets, 4.—1st, W. Stewart & Son; 2nd, J. H. Warrington; 3rd, A. G. H. Luxton; 4th, J. H. Warrington.

Colored Dorking.

Cocks, 2.—1st, W. H. Reid; 2nd, J. H. Warrington..
Hens, 3.—1st, J. H. Warrington; 2nd, W. Stewart & Son; 3rd, W. H. Reid.
Cockerels, 2.—2nd and 3rd, J. H. Warrington.
Pullets, 3.—1st and 3rd, J. H. Warrington; 2nd, W. H. Reid.

White Dorkings.

Cocks, 1.—1st, J. H. Warrington. *Cockerels, 2.*—1st, J. H. Warrington.
Hens, 2.—1st and 2nd, J. H. Warrington. *Pullets, 2.*—1st and 2nd, J. H. Warrington.

Houdans.

Cocks, 1.—1st, Dr. J. H. Bastien. *Pullet.*—2nd, E. Rodier.
Hens, 1.—2nd, Dr. J. H. Bastien.

A. O. V. French.

Cocks, 1.—1st, R. Oke.
Hens, 2.—1st, R. Oke; 3rd, J. H. Warrington.
Cockerels, 4.—1st, J. H. Warrington; 2nd, R. Oke; 3rd, E. Rodier.
Pullets, 3.—1st R. Oke; 2nd, J. H. Warrington; 3rd, E. Rodier.

Black Hamburgs.

Cocks, 3.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, B. Wright.
Hens, 3.—1st, B. Wright; 2nd, Wm. McNeil; 3rd, R. Oke.
Cockerels, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 2.—1st, Wm. McNeil; 2nd, R. Oke.

Golden Pen. Hamburgs.

Cocks, 2.—1st, Wm. McNeil; 2nd, B. Wright.
Hens, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, B. Wright.
Cockerels, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Pullets, 2.—1st, Wm. McNeil; 2nd, R. Oke.

Silver Pen. Hamburgs.

Cocks, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Hens, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Cockerels, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Pullets, 2.—2nd, R. Oke; 3rd, Wm. McNeil.

Golden Spangled Hamburgs.

Cocks, 3.—1st, B. Wright; 2nd, Wm. McNeil; 3rd, R. Oke.
Hens, 3.—1st, Wm. McNeil; 2nd, B. Wright; 3rd, R. Oke.
Cockerels, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 2.—1st, Wm. McNeil; 2nd, R. Oke.

Silver Pencilled Hamburgs.

Cocks, 3.—1st, R. Oke; 2nd, Dr. J. H. Bastein
Hens, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastein.
Cockerels, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 2.—1st, R. Oke; 2nd, Wm. McNeil.

Red Caps.

Cocks, 1.—1st, J. H. Warrington.
Hens, 3.—1st, 2nd and 3rd, J. H. Warrington.
Cockerels, 1.—1st, J. H. Warrington.
Pullets, 3.—1st, 2nd and 3rd, J. H. Warrington.

W. C. B. Polands.

Cocks, 2.—1st, Dr. J. H. Bastein; 2nd, Wm. McNeil.
Hens, 3.—1st and 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastein.
Cockerels, 2.—1st and 2nd, Wm. McNeil.
Pullets, 2.—1st, Wm. McNeil.

Golden Polands.

Cocks, 3.—1st, Dr. J. H. Bastien; 2nd and 3rd, Wm. McNeil.
Hens, 4.—1st and 2nd, Wm. McNeil; 3rd, Dr. J. H. Bastein.
Cockerels, 2.—1st and 2nd, Wm. McNeil.
Pullets, 2.—1st and 3rd, Wm. McNeil.

Silver Polands.

Cocks, 1.—1st, Wm. McNeil.
Hens, 2.—1st and 2nd, Wm. McNeil.
Cockerels, 2.—1st and 2nd, Wm. McNeil.
Pullets, 2.—1st and 2nd, Wm. McNeil.

White Polands.

Cocks, 2.—1st and 2nd, Wm. McNeil.
Hens, 3.—1st, 2nd and 3rd, Wm. McNeil.
Cockerels, 2.—1st and 2nd, Wm. McNeil.
Pullets, 3.—1st, 2nd and 3rd, Wm. McNeil.

A. O. C. Polands.

Cocks, 2.—1st and 2nd, Wm. McNeil.
Hens, 2.—1st and 2nd, Wm. McNeil.
Cockerels, 2.—2nd and 3rd, Wm. McNeil.
Pullets, 2.—1st and 2nd, Wm. McNeil.

A. O. V.

Cocks, 2.—1st and 2nd, Wm. McNeil.
Hens, 2.—1st and 2nd, Wm. McNeil.
Cockerels, 2.—1st and 2nd, Wm. McNeil.
Pullets, 2.—1st and 2nd, Wm. McNeil.

Black Red Game Bantams.

Cocks, 3.—1st, Rook Bros.; 3rd, Ottawa Poultry Yards.
Hens, 6.—1st and 3rd, Rook Bros.; 2nd and 4th, Chas. G. Taylor.
Cockerels, 5.—1st, Jas. Hillman; 2nd, 3rd and 4th, Rook Bros.
Pullets, 2.—1st, Rook Bros.; 2nd, J. H. Warrington.

Brown Red Game Bantams.

Hens, 2.—1st, Rook Bros.
Cockerels, 1.—1st, Rook Bros.
Pullets, 2.—1st and 2nd, Rook Bros.

Duckwing Game Bantams.

Cocks, 2.—1st, Rook Bros.; 3rd, W. H. Reid.
Hens, 2.—1st, Rook Bros.
Pullets, 3.—1st and 2nd, Rook Bros.; 3rd, W. H. Reid.

Pile Game Bantams.

Cocks, 2.—1st, Jas. Hillman; 2nd, Rook Bros.
Hens, 2.—1st, Jas. Hillman; 2nd, Rook Bros.
Cockerels, 1.—1st, Jas. Hillman.
Pullets, 1.—1st, Rook Bros.

Golden Sebright Bantams.

Cocks, 3.- 1st, R. Oke: 2nd, Wm. McNeil; 3rd, Chas. LaRose.
Hens, 4.—1st, Wm. McNeil; 2nd, L. A. Brill; 3rd, R. Oke; 4th, Chas. LaRose.
Cockerels, 4.—1st Wm. McNeil: 2nd W. Stewart & Son; 3rd, R. Oke.
Pullets, 4.—1st, L. A. Brill; 2nd, Wm. McNeil; 3rd, R. Oke; 4th, C. LaRose.

Silver Sebright Bantams.

Cocks, 5.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, G. A. McInnis; 4th, Slessor & McCracken.
Hens, 5.—1st, Wm. McNeil; 2nd, G. A. McInnis; 3rd, Slessor & McCracken; 4th, W. H. Reid.
Cockerels, 2.—1st, Wm. McNeil; 2nd, R. Oke.
Pullets, 3.—1st, Wm. McNeil; 2nd, W. H. Reid; 3rd, R. Oke.

Rose Comb Black Bantams.

Cocks, 5.—1st, Ottawa Poultry Yards; 2nd, Wm. McNeil; 3rd, R. Oke; 4th, Slessor & McCracken.
Hens, 7.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, L. A. Brill; 4th, G. A. McInnis.
Cockerels, 5.—1st Wm. McNeil: 2nd, R. Oke; 3rd W. H. Reid; 4th, G. Pillar.
Pullets, 5.—1st, Wm. McNeil; 2nd, G. Pillar; 3rd, R. Oke; 4th, W. H. Reid.

Buff Cochin Bantams.

Cocks, 2.—1st, R. Oke; 2nd, Wm. McNeil.
Hens, 3.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, Chas. G. Taylor.
Cockerels, 4.—1st, W. McNeil; 2nd, F. X. Laderoute; 3rd and 4th, J. S. Allan.
Pullets, 8.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, F. X. Laderoute; 4th, J. S. Allan.

Black Cochin Bantams.

Cocks, 2.—1st, J. H. Warrington; 2nd, W. H. Reid.
Hens, 2.—1st, W. H. Reid: 2nd, Slessor & McCracken.
Pullets, 4.—1st, Slessor & McCracken; 2nd, J. H. Warrington; 3rd, W. H. Reid; 4th, Slessor & McCracken.

White Cochin Bantams.

Cocks, 3.—1st, 2nd, 3rd, Wm. McNeil. *Cockerels, 3.*—1st, 2nd and 3rd, Wm. McNeil.
Hens, 3.—1st 2nd and 3rd, Wm. McNeil. *Pullets, 3.*—1st, 2nd and 3rd, Wm. McNeil.

Japanese Bantams.

Cocks, 4.—1st, Wm. McNeil; 2nd, R. Oke; 3rd, G. A. McInnis; 4th, W. H. Reid.
Hens, 4.—1st, R. Oke; 2nd, Wm. McNeil; 3rd, W. H. Reid.
Cockerels, 4.—1st, G. A. McInnis; 2nd, Wm. McNeil; 3rd, R. Oke.
Pullets, 4.—1st, G. A. McInnis; 2nd, R. Oke; 3rd, W. H. Reid.

A. O. V. Bantams.

Cocks, 4.—1st, R. Oke.
Hens, 5.—1st and 2nd, Wm. McNeil; 3rd, R. Oke.
Cockerels, 4.—1st and 3rd, Wm. McNeil; 2nd, R. Oke.
Pullets, 5.—1st and 3rd, Wm. McNeil; 2nd, R. Oke.

Bronze Turkeys.

Cocks, 1.—1st, A. Thompson.
Hens, 3.—1st, A. Thompson; 2nd, D. Cumming; 3rd, Geo. R. Bradley.
Cockerels, 5.—1st and 2nd, A. Thompson; 3rd, G. R. Bradley.
Pullets, 5.—1st and 2nd, A. Thompson; 3rd, G. R. Bradley.

WHITE TURKEYS.

Cocks, 1.—1st, D. Cumming.
Cockerels, 2.—1st and 2nd, A. Thompson.
Pullets, 3.—1st and 3rd, A. Thompson; 2nd, D. Cumming.

A. O. V. TURKEYS.

Cocks, 3.—1st, A. G. H. Luxton; 2nd, A. Thompson.
Hens, 3.—1st and 2nd, A. Thompson; 3rd, A. G. H. Luxton.
Cockerels, 3.—1st and 2nd, A. Thompson; 3rd, A. G. H. Luxton.
Pullets, 3.—1st and 2nd, A. Thompson; 3rd, A. G. H. Luxton.

TOULOUSE GEESE.

Ganders, 2.—1st and 2nd, A. Thompson.
Geese, 2.—1st and 2nd, A. Thompson.
Ganders, 1904, 3.—1st A. Thompson; 2nd, A. G. H. Luxton; 3rd, D. Cumming.
Geese, 1904.—1st and 2nd, A. Thompson; 3rd, D. Cumming.

BREMEN GEESE.

Ganders, 2.—1st and 2nd, A. Thompson.
Geese, 1.—1st, A. Thompson.
Ganders, 1904, 3.—1st, A. Thompson; 2nd, A. G. H. Luxton; 3rd, D. Cumming.
Geese, 1904, 2.—1st, A. Thompson; 2nd, A. G. H. Luxton.

CHINESE GEESE.

Ganders, 2.—1st, A. Thompson; 2nd, A. G. H. Luxton.
Geese, 2.—1st, A. G. H. Luxton; 2nd, A. Thompson.
Ganders, 1904, 2.—1st, A. Thompson; 2nd, A. G. H. Luxton.
Geese, 1904, 3.—1st, A. Thompson; 2nd, A. G. H. Luxton; 3rd, D. Cumming.

A. O. V. GEESE.

Ganders, 3.—1st, A. G. H. Luxton; 2nd and 3rd, A. Thompson.
Geese, 3.—1st and 3rd, A. Thompson; 2nd, A. G. H. Luxton.
Ganders, 1904, 4.—1st, A. Thompson; 2nd, A. G. H. Luxton.
Geese, 1904, 5.—1st and 2nd, A. Thompson; 3rd, A. G. H. Luxton..

ROUEN DUCKS.

Drakes, 1.—1st, A. Thompson.
Ducks, 1.—1st, A. Thompson.
Drakes, 1904, 1.—1st, A. Thompson.
Ducks, 1904, 1.—1st, A. Thompson.

PEKIN DUCKS.

Drakes, 4.—1st, A. Thompson; 2nd, R. A. Robertson; 3rd, F. O. Leroux.
Ducks, 4.—1st, A. Thompson; 2nd, F. O. Leroux; 3rd, W. Stewart & Son.
Drakes, 1904, 3.—1st, A. Thompson; 2nd, F. O. Leroux; 3rd, D. Cumming.
Ducks, 1904, 4.—1st, A. Thompson; 2nd, D. Cumming; 3rd, F. O. Leroux.

AYLESBURY DUCKS.

Drakes, 1.—1st, A. Thompson.
Ducks, 2.—1st, A. Thompson.
Drake, 1904, 1.—1st, A. Thompson.
Ducks, 1904, 1.—1st, A. Thompson.

CAYUGAS.

Drakes, 2.—1st, D. Cumming; 2nd, A. Thompson.
Ducks, 2.—1st, A. Thompson; 2nd, D. Cumming.
Drakes, 1904, 2.—1st, A. Thompson.
Ducks, 1904, 2.—1st, J. H. Warrington; 2nd, A. Thompson.

A. O. V. DUCKS.

Drakes, 3.—1st, B. Wright; 2nd, F. Wales; 3rd, A. Thompson.
Ducks, 3.—1st, B. Wright; 2nd, F. Wales; 3rd, A. Thompson.
Drakes, 1904, 3.—1st, A. Thompson; 2nd, B. Wright; 3rd, A. G. H. Luxton.
Ducks, 1904, 3.—1st, A. Thompson; 2nd, A. G. H. Luxton; 3rd, B. Wright.

PIGEONS.

Black Carrier.

Hen, 1.—1st, W. H. Reid.

Dun Carrier.

Hen, 1.—1st, Maplewood Columbary.

A. O. C. Carrier.

Cock, 1.—1st, Maplewood Columbary. *Hen, 1.*—1st, W. H. Reid.

White Pouter.

Cocks, 2.—1st and 2nd, Maplewood Columbary.
Hens, 2.—1st and 2nd, Maplewood Columbary.

Blue Pied Pouter.

Cocks, 2.—1st and 2nd, Maplewood Columbary.
Hens, 2.—1st and 2nd, Maplewood Columbary.

Black Pied Pouter.

Cocks, 2.—1st and 2nd, Maplewood Columbary.
Hens, 2.—1st and 2nd, Maplewood Columbary.

Yellow or Red Pouter.

Cocks, 2.—1st and 2nd, Maplewood Columbary.
Hens, 2.—1st and 2nd, Maplewood Columbary.

Pigmy Pouter.

Cocks, 1.—1st, Maplewood Columbary. *Hens, 1.*—1st, Maplewood Columbary.

Muffed Tumbler.

Cocks, 2.—1st, Maplewood Columbary; 2nd, W. H. Reid.
Hens, 2.—1st, Maplewood Columbary; 2nd, W. H. Reid.

L. F. C. L. Tumbler.

Cocks, 3.—1st, Maplewood Columbary; 2nd and 3rd, Burrmount Pigeon Lofts.
Hens, 3.—1st, Maplewood Columbary; 2nd and 3rd, Burrmount Pigeon Lofts.

S. F. Almond Tumbler.

Cocks, 1.—1st Maplewood Columbary.
Hens, 2.—1st, Maplewood Columbary; 2nd, W. H. Reid.

S. F. A. O. C. Almond Tumbler.

Cocks, 3.—1st, Maplewood Columbary; 2nd, W. H. Reid; 3rd, E. R. Frith.
Hens, 3.—1st, Maplewood Columbary; 2nd, W. H. Reid; 3rd, E. R. Frith.

Red Barb.

Cocks, 1.—1st, F. X. Laderoute. *Hens, 1.*—1st, F. X. Laderoute.

Black Barb.

Cocks, 1.—1st, F. X. Laderoute.

A. O. S. C. Barb.

Hen, 1.—1st, F. X. Laderoute.

White Trumpeter.

Cock, 1.—1st, W. H. Reid.

A. O. S. C. Trumpeter.

Cocks, 4.—1st, Burrmont Pigeon Lofts; 2nd, W. H. Reid; 3rd, Geo. Higman.
Hens, 4.—1st, Burrmont Pigeon Lofts; 2nd, W. H. Reid; 3rd, Geo. Higman.

Red or Yellow Jacobin.

Cocks, 2.—1st, Maplewood Columbary; 2nd, Maplewood Columbary.
Hens, 2.—1st, Maplewood Columbary; 2nd, W. H. Reid.

White Jacobins.

Cocks, 1.—1st, Maplewood Columbary. *Hens, 1.*—1st, Maplewood Columbary.

A. O. S. C. Jacobins.

Cocks, 2.—1st and 2nd, Maplewood Columbary.
Hens, 2.—1st and 2nd, Maplewood Columbary.

Runt.

Cocks, 1.—1st, Maplewood Columbary *Hens, 1.*—1st, Maplewood Columbary.

Oriental Frills.

Cocks, 1.—1st, Maplewood Columbary. *Hens, 1.*—1st, Maplewood Columbary.

R. C. Antwerp.

Cocks, 3.—1st, Maplewood Columbary; 2nd and 3rd, W. H. Reid.
Hens, 3.—1st and 3rd, W. H. Reid; 2nd, Maplewood Columbary.

Silver Dun Antwerp.

Cocks, 3.—1st and 2nd, W. H. Reid, 3rd, Maplewood Columbary.
Hens, 3.—1st and 2nd, W. H. Reid; 3rd, Maplewood Columbary.

White Fantail.

Cocks, 4.—1st and 3rd, Maplewood Columbary; 2nd, F. X. Laderoute.
Hens, 3.—1st and 2nd, Maplewood Columbary; 3rd, F. X. Laderoute.

Blue Fantails.

Cocks, 1.—1st, Maplewood Columbary.
Hens, 2.—1st, W. H. Reid; 2nd, Maplewood Columbary.

A. O. C. Fantails.

Cocks, 2.—1st and 2nd, Maplewood Columbary.
Hens, 2.—1st and 2nd, Maplewood Columbary.

Red or Yellow Magpie.

Cocks, 3.—1st, Burrmont Pigeon Lofts; 2nd, Maplewood Columbary; 3rd, F. X. Laderoute.
Hens, 3.—1st, Maplewood Columbary; 2nd, Burrmont Pigeon Lofts; 3rd, F. X. Laderoute.

A. O. C. Magpie.

Cocks, 4.—1st, Burrmont Pigeon Lofts; 2nd, Maplewood Columbary.
Hens, 4.—1st, John A. Belford; 2nd, Maplewood Columbary.

Show Homer.

Cocks, 2.—1st, Maplewood Columbary; 2nd, Burrmont Pigeon Lofts.
Hens, 2.—1st, Burrmont Pigeon Lofts; 2nd, Maplewood Columbary.

BLACK SWALLOW.

Cocks, *5*.—1st, Maplewood Columbary; 2nd, F. X. Laderoute; 3rd, W. H. Reid.
Hens, *5*.—1st, Maplewood Columbary; 2nd, W. H. Reid; 3rd, F. X. Laderoute.

A. O. S. C. SWALLOW.

Cocks, *4*.—1st, F. X. Laderoute; 2nd, Maplewood Columbary; 3rd, W. H. Reid.
Hens, *3*.—1st, F. X. Laderoute; 2nd, Maplewood Columbary.

A. O. C. SWALLOW.

Cocks, *4*.—1st, W. H. Reid; 2nd and 3rd, F. X. Laderoute.
Hens, *3*.—1st, F. X. Laderoute; 2nd, W. H. Reid.

DRAGOON.

Cocks, *3*.—1st and 2nd, Maplewood Columbary; 3rd, W. H. Reid.
Hens, *2*.—1st and 2nd, Maplewood Columbary.

ARCHANGELS.

Cocks, *3*.—1st and 2nd, F. W. Day; 3rd, W. H. Reid.
Hens, *4*.—1st and 2nd, F. W. Day; 3rd, Burrmont Pigeon Lofts.

NUNS.

Cocks, *3*.—1st and 2nd, W. H. Reid; 3rd, Maplewood Columbary.
Hens, *3*.—1st, Maplewood Columbary; 2nd and 3rd, W. H. Reid.

AFRICAN OWLS.

Cocks, *2*.—1st, Maplewood Columbary; 2nd, F. X. Laderoute.
Hens, *2*.—1st, F. H. Laderoute; 2nd, Maplewood Columbary.

ENGLISH OWLS, BLUE OR SILVER.

Cocks, *1*.—1st, Maplewood Columbary. *Hens*, *1*.—1st, Maplewood Columbary.

A. O. V. OWL.

Cocks, *2*.—1st and 2nd, Maplewood Columbary.
Hens, *2*.—1st and 2nd, Maplewood Columbary.

BLACK TURBITS.

Cocks, *7*.—1st, Maplewood Columbary; 2nd, F. X. Laderoute; 3rd, Geo. Higman
Hens, *4*.—1st, Maplewood Columbary; 2nd, Geo. Higman; 3rd, Burrmont Pigeon Lofts.

A. O. C. TURBITS.

Cocks, *3*.—1st, Geo. Higman; 2nd, Maplewood Columbary.
Hens, *3*.—1st, Maplewood Columbary; 2nd, Maplewood Columbary.

A. O. VARIETY.

Cocks, *2*.—1st, W. H. Reid; 2nd, F. X. Laderoute.
Hens, *2*.—1st, W. H. Reid; 2nd, F. X. Laderoute.

PEA FOWL.

Pair.—1st and 2nd, J. A. Richardson.

BELGIAN HARES, OVER 6 MONTHS

Does, *2*.—1st and 2nd, Ottawa Poultry Yards. *Bucks*, *1*.—1st, Ottawa Poultry Yards.

BELGIAN HARES, UNDER 6 MONTHS.

Bucks, *2*.—1st and 2nd, Ottawa Poultry Yards.
Does, *2*.—1st and 2nd, Ottawa Poultry Yards.

DRESSED POULTRY.

Pair, Brahmas or Cochins, 1904.—1st, 2nd and 3rd, A. Armstrong.
Pair, Javas or Langshans, 1904.—1st, A. A. Armstrong.
Pair, Plymouth Rocks, 1904.—1st, 2nd and 3rd, A. A. Armstrong.
Pair, Wyandottes, 1904.—1st, 2nd and 3rd, A. A. Armstrong.
Pair, Minorcas, Andalusians or Leghorns, 1904.—1st, 2nd and 3rd, A. A. Armstrong.
Pair, Dorkings, 1904.—1st, A. A. Armstrong.
Pair, Orpingtons, 1904.—1st and 3rd, A. A. Armstrong; 2nd, A. W. E. Hellyer.
Pair Game, 1904.—1st, Chas. LaRose; 2nd, C. Pillar.
Best Pair, 1904.—1st, A. A. Armstrong.
Turkey, male, any age.—1st, A. A. Armstrong; 2nd, W. Stewart & Son.
Turkey, female, any age.—1st and 3rd, A. A. Armstrong; 2nd, W. Stewart & Son.
Turkey, female, 1904.—1st and 3rd, A. A. Armstrong; 2nd, W. Stewart & Son.
Pair, White Geese, 1904.—1st, A. Thompson; 2nd and 3rd, A. A. Armstrong.
Pair, Colored Geese. 1904.—1st and 3rd, A. A. Armstrong; 2nd, A. Thompson.
Pair, White Ducks, 1904.—1st and 2nd, A. A. Armstrong.
Pair, Colored Ducks, 1904.—1st and 2nd, A. A. Armstrong.
Dozen Eggs, White.—1st and 2nd, E. R. Frith; 3rd, D. Cumming.
Dozen Eggs, Colored.—1st, Geo. Lake; 2nd, Wm. Delary; 3rd, D. Cumming.

SELLING CLASS.

Dorking Males.—3rd, J. H. Warrington.
Dorking Females.—1st and 3rd, J. H. Warrington; 2nd, W. Stewart & Son.
Plymouth Rock Males.—1st, A. Thompson; 2nd, W. L. Montgomery; 3rd, F. A. James.
Plymouth Rock Females.—1st, J. A. Lambertus; 2nd, A. A. Armstrong; 3rd, F. Wales.
Wyandottes, Males.—1st, F. Wales; 3rd, Garland & Gilchrist.
Wyandottes, Females.—1st, Jas. A. Cokers; 2nd, S. Short; 3rd, J. R. K. Bristol.
Orpington, Males.—2nd, S. W. D. Frith; 3rd, A. W. E. Hellyer.
Orpington, Females.—1st, S. W. D. Frith; 2nd and 3rd, A. W. E. Hellyer.
Minorca, Males.—1st, Ottawa Poultry Yards; 2nd and 3rd, E. R. Frith
Minorca, Females.—1st, Ottawa Poultry Yards; 2nd, E. R. Frith; 3rd, B. Wright.
Leghorn, Males.—1st, John I. Gill; 2nd, W. H. Carleton; 3rd, Jas. McGurran.
Leghorn, Females.—1st, Geo. Lake; 2nd and 3rd, Jas. McGurran.

REPORT

OF THE

Registrar of Live Stock

OF THE

Province of Ontario

1904.

DOMINION SHORTHORN BREEDERS' ASSOCIATION.
CANADIAN AYRSHIRE BREEDERS' ASSOCIATION.
CANADIAN HEREFORD BREEDERS' ASSOCIATION.
CANADIAN HACKNEY HORSE SOCIETY.
CLYDESDALE HORSE BREEDERS' ASSOCIATION.
SHIRE HORSE BREEDERS' ASSOCIATION.
CANADIAN PONY SOCIETY.
HARNESS, HUNTER, AND SADDLE HORSE SOCIETY.
CANADIAN HORSE BREEDERS' ASSOCIATION.

(PUBLISHED BY THE ONTARIO DEPARTMENT OF AGRICULTURE, TORONTO.)

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Printed by L. K CAMERON, Printer to the King's Most Excellent Majesty.

TORONTO, 1905

WARWICK BRO'S & RUTTER, Limited, Printers,
Toronto.

To the Honourable WILLIAM MORTIMER CLARK, K.C., *Lieutenant-Governor of the Province of Ontario.*

MAY IT PLEASE YOUR HONOUR:

The undersigned begs to present herewith for the consideration of His Honour the Report of the Registrar of Live Stock for 1904.

Respectfully submitted,

NELSON MONTEITH,
Minister of Agriculture.

TORONTO, 1905.

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DIRECTORS' MEETING.

The nineteenth annual meeting of directors of the Dominion Shorthorn Breeders' Association was held at the Walker House, Toronto, on the evening of January 16th, 1905.

The President, William Linton, of Aurora, on behalf of the Association, warmly welcomed the Directors from Manitoba, Messrs. J. G. Barron and F. W. Brown. Other Directors present were: W. G. Pettit, Freeman, First Vice-President; A. W. Smith, Maple Lodge, Second Vice-President; A. Johnston, Greenwood, James Russell and Robert Miller, ex-President; and W. D. Flatt, Hamilton; Thos. Russell, Exeter; S. Dyment, Barrie; James M. Gardhouse, Weston; Capt. T. E. Robson, Ilderton; John Davidson, Ashburn; John Isaac, Markham; George Raikes, Barrie; C. M. Simmons, Ivan; W. J. Biggins, Clinton; H. Smith, Hay; H. Wade, Secretary-Treasurer; H. Gerald Wade, Assistant Secretary.

The minutes of last Directors' meeting were read and confirmed.

On the consideration of the Secretary's nineteenth annual report, the President asked for expressions of opinion, and Mr. Barron said he thought it an excellent one, but took occasion to say that the members for Manitoba and the Territories should be entitled to the same treatment as the members for Ontario, in so far as being made members of the Dominion Cattle Breeders' Association by the payment by the Shorthorn Association of 50c. a member was concerned.

Mr. Brown: So far as I am concerned, this report is entirely satisfactory to me. I can see by the report that we people in the West have received all that is justly coming to us, if not more, and I think your Association has used the Province of Manitoba exceedingly well at our Dominion Fair this year.

Mr. Flatt: We did not expect our membership to increase at such a rate this year, viz., 305. We printed only two thousand copies of the Herd Book. Now we will have to print more.

The report was then adopted.

A letter was read from Richard Gibson, of Delaware, expressing regret at unavoidable absence, and strongly opposing moving the offices to Ottawa and the placing of the records of the Association in Government hands. He cared not what party was in power, the records were not playthings for politicians. (Applause.)

Mortimore Beattie, of Kamloops, B.C., wrote, asking for a grant this year to the Kamloops Agricultural Society to enable them, as far as possible, to encourage the breeding of Shorthorn cattle in that district.

The question of prize money to be awarded at the different Provincial and Territorial Shows was then introduced on the reading of the following resolution, adopted at a committee meeting of January 10th:—

"That each Provincial and Territorial Association accepting this grant must allot as much more from their own funds; that all animals must be recorded in the Dominion Shorthorn Herd Book, and that a complete statement be furnished by each Secretary, giving the names of the animals, their pedigree numbers on schedules furnished from this office and the amount of prize money paid, and that in case all of the grant from this Association be not taken up, a cheque will be sent for the reduced amount."

An extended discussion followed, during which it was suggested that

British Columbia and the Territories were entitled to more consideration, and it was finally decided to reduce by $50 each the amount set opposite Nova Scotia, New Brunswick, and Prince Edward Island, and award this sum, $150, as prizes in the North-West Territories or British Columbia at a place or places to be decided by the Executive.

The following are the amounts finally adopted by the meeting:

Victoria or New Westminster, alternate years	$200
Calgary	300
Regina	100
Winnipeg	100
Toronto	1,500
Sherbrooke or Quebec	100
St. John or Fredericton	50
Halifax	50
Charlottetown	50
Winter Fair, Guelph	300
Winter Fair, Amherst	100

In addition, $150 is to be awarded as prizes in the North-West Territories or British Columbia at a place or places to be decided by the Executive. This makes a total of $3,400 for the year, as compared with $4,859 last year.

In the discussion of prize allotments, many of the speakers referred to the desirability or non-desirability, according as they viewed it, of continuing affiliation with the Cattle Breeders' Association. No resolution was offered, however, and the question went over to the annual meeting.

Mr. Miller reported verbally on behalf of the deputation to the National Convention at Ottawa, and was requested to have prepared for the annual meeting resolutions dealing with the possible removal of control of records, etc., to Ottawa, and expressing the views of the Executive on the present regulations governing the importation of cattle for breeding purposes.

The Directors listened to a speech by Mr. Cowan, Provincial Superintendent of Agricultural Societies, suggesting the reduction of agricultural societies and the apportioning of Government grants in proportion to the amount expended for purely agricultural purposes, and a resolution was suggested to this effect.

The Executive decided to continue grant of $100 towards payment of men in charge of cars of cattle going West.

ANNUAL MEETING.

The 19th annual meeting of the Dominion Shorthorn Breeders' Association was held in St. George's Hall, Toronto, on the morning of January 17th, 1905, commencing at 11.20 o'clock.

PRESIDENT'S ADDRESS.

By William Linton, Aurora.

I desire in the first place to express the great pleasure which I have derived from the performance of my duties as President of this Association. I desire also to say that I have received from my associates on the Executive, individually and collectively, during the term of my office, the most loyal support, and I carry with me the remembrance of nothing but the most pleasant associations during my term of office. I might further say that my association with all the members of the Shorthorn Breeders' Association during

the past twenty years has been of the most cordial nature. And whilst on this subject I must not forget our officers. I have always received, and I believe you have always received, the kindest treatment from them—from Mr. Wade, our Secretary, his son, and all the clerks in the office. They have always been prompt and efficient in all their dealings with the breeders.

Turning to the financial condition of the Association, you will see that the balance on hand this year is $3,834. Last year it was $5,515. There has always been a steady increase, as you will note from the annual report, of members from the inception of the Association to the present date, and I should very much like to see this continue. You will see that Ontario has more than two-thirds of the total number of members. It has been mooted that some of our friends in the outlying Provinces think they have had an injustice done to them; that they have not had representation that they should have had through this Association. I have never found, during the twenty years that I have been connected with them, the slightest disposition on the part of any individual or any member of this Association, at these meetings or anywhere else, to deprive anyone in the remotest part of this Dominion of any privilege or any advantage which we possess in Ontario, and I believe that spirit will be perpetuated from now on as long as this Association exists. I have every confidence that our breeders are an honorable set of men, and that there is nothing to be hidden. Each gentleman who is a member of this Association gets our annual report, and can read it at his own fireside and scrutinize it carefully, and if he thinks that there is any injustice done any individual or any section, he should report that as a member of the Association, and if he cannot come here he can write, and I believe if there is any injustice or wrong done, the Association will be only too glad to make it right.

We pay more money to the different Provinces and Territories by a great deal than we receive from them, and I fancy you will a little later hear some criticism that we have been rather extravagant in the making of grants during the past year, and possibly there will be a little retrenchment this year. You will find also that your finance committee has decided to adopt a certain method in dealing with the different Provinces and Territories, which will enable them to deal more intelligently with each section, and I think that there will be a larger surplus next year than there is this. Our Executive has always been frank, straightforward and honorable, and they tell you the whole story in their annual report.

Perhaps I had better say something about our rather large expenditure in connection with the Toronto Exhibition. You are all aware, gentlemen, that the Toronto Exhibition is, we may say, a universal exhibition. It attracts the attention of men as far south as the Gulf of Mexico, and there are men in Cape Breton, and in Victoria, Vancouver Island, who watch for the report of the prizes won in the Shire classes, the Clydesdale classes and Shorthorn classes at this exhibition; and I have no hesitation in saying that the Toronto Exhibition is looked upon as being the best exhibition on this continent if not in the entire world. The United States sent their best animals to Toronto last year, and a great many of them could not win here. They afterwards were taken to the great Exposition at St. Louis, and could win there, and that shows that we have the best exhibition on this continent at any rate, if not the best in the world.

There is something further I must say, and I am very, very sorry to say it. I refer to the restrictions which are laid upon the importers and breeders of this country and which are almost unbearable. If it was not done by our own people it would be something different. The United States can do as they like, and they can debar us from sending our cattle in there as much

as they like, but when our own people lay upon us restrictions that no other persons in this country could scarcely survive under, I tell you, gentlemen, I think it is time that this Association and all other pure-bred associations raised their voices in this matter and let the legislators at Ottawa know how we feel on the subject. It is a subject that I hesitate to touch upon. I am in favor of the present Administration, and it galls me, I can assure you, very sorely to say anything that is detrimental to the Government at Ottawa, but these restrictions on stock-breeders are a great burden to bear, and are becoming worse and worse from year to year, and are of no benefit to anybody. If this were not true I would be weakening our position and furnishing weapons to our enemies.

In conclusion, I would say that when our Canadian boys cease to love Shorthorns and cease to love fine horses; when they cease to like cricket and all other out-door sports such as hunting, shooting, etc.; when their hearts cease to swell at the thoughts of the great heritage that God has given them in this great country of ours and the possibilities of it; and when they cease to do what is right with their fellowmen in our own country and the foreigner,, wherever they may be and with whomsoever they may be dealing—I say, when they cease to do all this, so soon will this country sink into insignificance and leave a very poor record on the world's history. (Applause.)

On motion the minutes of the last annual meeting were taken as read.

REPORT OF THE SECRETARY AND EXECUTIVE COMMITTEE.

The Executive Committee beg to present the nineteenth annual report as furnished by the Secretary and Editor, of the business done by this Association for the year ending 31st December, 1904.

Registrations have kept up well this year. Shorthorn breeding, like every other avocation, has had its ups and downs, its bright periods of prosperity, and its dark days of adversity. It has been truly said that rival breeds may come and go, the recipients of a short-lived fancy, but the Shorthorn goes on forever. If we trace the history of the breed from its earliest beginning down to the present, we find that it has stood the test of ages. During all this time it has existed as a distinct, improved, and well-developed type, and has stamped its royal impression upon every other breed with which it has come in contact, and to-day we have the inviting spectacle to all lovers of Shorthorns, of seeing our breed basking in the sunshine of popularity such as no other variety of improved live stock can boast, and may we look forward to a period of steady prices and good results.

Volume XX. of the Herd Book has been issued, and contains the pedigrees of 4,873 bulls and 5,478 cows, or a total of 10,351, and making a total in the twenty volumes now published of 50,107 bulls and 59,472 cows, or a grand total of 109,579 pedigrees. The pedigrees of the bulls are numbered and printed numerically in the order they are received, and those of the females under the names of the owners, and both are abbreviated as fine as possible. The financial report of the Association up to the end of the year, a tabulated list of the number of members in the different Provinces, and the record of prize winners at the different exhibitions which have received our grants, also add interest to Volume XX.

The pedigrees of 96 imported bulls and 169 imported cows are recorded in Volume XX. The names of the gentlemen who have imported in 1904 are as follows: R. Miller, Stouffville; H. J. Davis, Woodstock; Ontario Agricultural College, Guelph; John Graham, Carberry, Man.; Arthur Johnston, Greenwood, W. D. Flatt, Hamilton; Sanders & Chapman, St. Thomas; Alex. Isaac, Cobourg.

The following amounts were paid out by this Association for prizes at the different exhibitions in Canada for 1904: St. John's, N.B., $85; Amherst, N.S., $100; Halifax, N.S., $100; New Westminster, B.C., $100; Victoria, B.C., $100; P. E. I., $90; Brandon, Man., $178; Winnipeg, Man., $1,200; Kamloops, B.C., $25; Sherbrooke, Quebec, $100; Calgary, Alta., $290; London, $200; Ottawa, $80; Dominion Cattle Breeders' Association (for prizes at Guelph and Ottawa Winter Fairs), $711; Toronto, $1,500. Total, $4,859. As will be seen by the above statement, the amount of premiums awarded was largely increased during the past year, and since 1895 this Association has distributed prize money amounting to a total of $22,607, as follows: From Halifax and Amherst, N.S., on the East, through St. John's, N.B., Charlottetown, P.E.I., Sherbrooke, Que., Ottawa, Toronto, Guelph, and London, Ont., Winnipeg and Brandon, Man., Saskatoon, Sask., Calgary, Alta., to New Westminster and Victoria, B.C., on the West, making a complete chain from the Atlantic to the Pacific.

Representatives of our Association were present at the Dominion of Canada Exhibition, held in the city of Winnipeg, and also at the Brandon Fair. At the latter the Association contributed $178 in cash towards the prize list. An excellent display of Shorthorns was made at the Dominion Exhibition. The popularity of this great breed of cattle is steadily increasing in the West, and the wisdom of the large appropriation of $1,200 made by this Association was shown by the splendid number of entries in nearly all classes. The Association had an office on the Exhibition grounds ("in the Live Stock Association tent"), in charge of your Assistant Secretary, during the two weeks of the show, and it proved to be of great assistance and convenience to breeders wishing information regarding registrations. A number of breeders joined the Association and paid their membership fees, and pedigree blanks were supplied to all those wishing them.

The work done in the office during the past year has been large, owing to the number of registrations and memberships. Eighteen thousand five hundred letters and communications have been mailed, also 2,005 membership receipts, 2,049 Herd Books, 2,300 annual reports, besides several thousand entry forms, as well as attending to the requirements of the number of breeders from all over the country, who have called from time to time at the office.

All pedigrees sent in up to December 31st, 1904, have been passed and certificates issued, and with the continuation of our present endeavors it is hoped that the certificates will be kept entirely up-to-date, and that there will be no cause of complaining on account of delays in receiving certificates.

All the pedigrees have to be checked, then posted. Fully half of the letters that are received with pedigrees have to be answered on account of insufficient information, the answers requiring careful consideration. We never pass a pedigree without examining that of the sire and dam, checking the age of the sire and examining the dates of birth of produce under the dam to detect errors in date of birth.

Pedigrees when corrected and returned to the office are fyled for the volume that they would have been put in, providing, of course, they are received in time.

Shorthorn breeders in Manitoba and the Territories especially, should be particularly careful to have the pedigrees of animals purchased in the United States recorded in the Dominion Herd Book before they come into this country, as many of the pedigrees in the American Herd Book are not eligible for record in our book, as they do not trace in all their crosses to imported

cows. Special attention is called to this matter, as a number of cattle have been brought across the line during the last three years whose pedigrees had to be rejected for above reason.

All pedigrees shall be signed by the breeder, or in case of death, by a proper representative. The breeder of an animal is the owner of the dam at the time of service.

We regret to have to report the death of John Miller, Esq., of Brougham, Ont., Honorary Life member of this Association, and several other members of the Association.

We have been honored by having the following list of agricultural live stock papers and herd books upon our exchange list, for which they have our thanks. We keep these publications on fyle for the inspection of our members: *The Farmers' Advocate*, London, Ont., and Winnipeg, Man.; *The Breeders' Gazette*, Chicago, Ill.; *Thornton's Circular*, London, England; *The Weekly Sun*, Toronto, Can.; *The Farming World*, Toronto, Can.; *The North-West Farmer*, Winnipeg, Man.; *The Ottawa Valley Journal*, Ottawa, Ont.; *The Country Gentleman* Albany, N.Y.; *The Maritime Farmer*, Truro, N.S., and Sussex, N.B.; *Drovers' Journal*, Chicago, Ill.; *The Weekly Mail and Empire*, and *Farm and Fireside*, Toronto, Can.; *Live Stock Journal*, London, England. We have also received since the last meeting Volume L. of "Coate's (S.H.) Herd Book," London, England, and Volumes 57 and 58 of the "American Shorthorn Herd Book."

The Association was incorporated under the Dominion Live Stock Record Act in January, 1901, and on all certificates, transfers and publications issued by this Association now appears the following: "Incorporated under the Act respecting the incorporation of Live Stock Record Associations at the Department of Agriculture, Ottawa," and on the official stamp of the Association the following has been inserted: "Incorporated under the Dominion Live Stock Record Act." This is in accordance with the bill passed by the Dominion Government on June 14th, 1900.

In 1898 the annual fees were reduced to $2.00 per annum, which has resulted in a very large increase in membership, consequently circulating more of the Herd Books amongst the breeders. The penalty fees have also been reduced—to members, from $1.75 to $1.00, and for non-members from $2.25 to $1.75. The time limit was changed, in 1897, to two years, instead of eighteen months.

A list of errors called an Errata, is made in each volume, which should be marked in red ink in the volume mentioned. We also hope breeders will furnish us with any catalogue of sales that may be made during the year.

Your committee would call particular attention to the rule requiring all calves born to be recorded before they are twenty-four months old. A penalty fee will be charged after that age. Attention is also called to the clause of the constitution which requires that 'a member must pay up all his fees in arrears before he can resign;" and to another clause. "That when books and documents are mailed or expressed, properly prepaid, the duties of the Association are fulfilled, and should a volume or pedigree be lost in the mail, duplicate copies will have to be paid for."

The following table will prove interesting, as it shows the number of members from the different provinces, also the amount received during 1904 for registration fees, and the amount paid out in prize money to the different exhibitions in all parts of Canada from the Atlantic to the Pacific:

	Number of members, 1904.	Membership fees, 1904.	Registration fees, 1904.	Total amount of prizes paid out from 1895 to 1903.	Prizes paid out, 1904.
		$ c.	$ c.	$ c.	$ c.
Ontario	1,478	2,956 00	6,772 50	10,716 00	2,491 00
Manitoba	300	600 00	1,315 75	3,562 00	1,378 00
Alberta	58	116 00	470 75	300 00	290 00
Assiniboia	67	134 00	247 50	.....	.....
Saskatchewan	16	32 00	72 50	75 00	25 00
British Columbia	17	34 00	59 25	540 00	225 00
Quebec	30	60 00	186 25	745 00	100 00
Nova Scotia	21	42 00	94 00	810 00	200 00
New Brunswick	3	6 00	23 75	300 00	85 00
Prince Edward Island	9	18 00	22 50	250 00	90 00
United States	6	12 00	120 00	450 00	.....
Total	2,005	4.010 00	9,384 75	17,748 00	4.859 00

NOTE.

Amount received from registration fees from all the Provinces (with the exception of Ontario)	$2,612 25
Amount paid out for prizes to all the Provinces (with the exception of Ontario)	2,368 00
Amount received for registration fees from Ontario	$6,772 50
Amount paid out for prizes in Ontario	2,491 00
Total number of members in all the Provinces (with the exception of Ontario	521

REGISTRATIONS.

In 1904 we were paid for 9,648 registrations and 3,930 changes of ownership and duplicate certificates; against, in 1903, 10,008 registrations and 3,735 changes of ownership; against, in 1902, 9,980 registrations and 3,883 changes of ownership; against, in 1901, 8,874 registrations and 3,019 changes of ownership; against, in 1900, 7,990 registrations and 3,397 changes of ownership; against, in 1899, 7,068 registrations and 2,006 changes of ownership and duplicate certificates; against, in 1898, 5,386 registrations, 5,555 certificates, and 1,064 changes of ownership; against, in 1897, 4,128 registrations, 4,246 certificates, and 620 changes of ownership; against, in 1896, 2,957 registrations, 3,017 certificates, and 379 changes of ownership; against, in 1895, 3,000 registrations, 3,100 certificates, and 450 changes of ownership; against, in 1894, 3,045 registrations, 3,142 certificates, and 493 transfers.

Following up the change in registrations, as a matter of course, there is a corresponding change in registration fees. In 1891 we received $3,152.50; in 1892, $3,835.25; in 1893, $3,787.45; in 1894, $3,357.75; in 1895, $3,220.00; in 1896, $2,954.00; in 1897, $4,124.25; in 1898, $5,233.00; in 1899, $6,834.75; in 1900, $7,953.00; in 1901, $8,560.00; in 1902, $9,497.31; in 1903, $9,749.02; and in 1904, $9,384, a decrease of $364.27.

There were sent out in 1904: Of Vol. I., 4 copies; of Vol. II., 4 copies; of Vol. III., 5 copies; of Vol. IV., 5 copies; of Vol. V., 9 copies; of Vol. VI., 16 copies; of Vol. VII., 19 copies; of Vol. VIII., 14 copies; of Vol. IX., 4 copies;

of Vol. X., 5 copies; of Vol. XI., 27 copies; of Vol. XII., 32 copies; of Vol. XIII., 56 copies; of Vol. XIV., 21 copies; of Vol. XV., 22 copies; of Vol. XVI., 268 copies; of Vol. XVII., 347 copies; of Vol. XVIII., 438 copies; of Vol. XIX., 642 copies; of Vol. XX., 111 copies, a total of 2,094 copies.

NUMBER OF MEMBERS FROM INCEPTION TO DATE.

	Resigned and lapsed.	Not paid.	New paid.	Old paid.	Total paid.
B. A., 1882	.....	.....	164	164	164
" 1883	.....	.....	73	164	237
" 1884	.....	.....	42	173	215
" 1885	.....	.....	39	187	220
Dom. S. H. B. Asso., 1886	37	8	215	195	410
" " " 1887	54	81	80	357	437
" " " 1888	79	69	46	388	434
" " " 1889	37	91	36	398	434
" " " 1890	33	74	29	405	434
" " " 1891	67	59	32	365	397
" " " 1892	22	47	60	398	458
" " " 1893	38	72	49	349	398
" " " 1894	72	88	66	318	384
" " " 1895	.....	.....	60	290	350
" " " 1896	41	77	109	315	424
" " " 1897	36	50	106	431	537
" " " 1898	24	48	250	463	713
" " " 1899	31	83	399	657	1,056
" " " 1900	64	142	305	946	1,251
" " " 1901	82	129	310	1,255	1,565
" " " 1902	116	197	377	1,385	1,762
" " " 1903	165	264	345	1,591	1 936
" " " 1904	234	321	305	1,700	2.005

This table shows that our paid-up membership roll has increased 69 in the last year in total numbers. Our income from members' fees for 1896 was $1,289; for 1897, $1,615; for 1898, $1,536; for 1899, $2,112; for 1900, $2,502; for 1901, $3,130; for 1902, $3,524; for 1903, $3,872, and for 1904, $4,010.

PEDIGREES ON RECORD.

Volume I. contains 3,304; II., 4,427; III., 4,593; IV., 4,957; V., 4,388; VI., 5,904; VII., 4,954; VIII., 4,024; IX., 3,633; X., 3,669, XI., 3,213; XII., 3,148; XIII., 2,714; XIV., 4,147; XV., 5,776; XVI., 7,024; XVII., 9,406; XVIII., 9,168; XIX., 10,444; XX., 10,351; XXI. will contain about 10,600. As shown by the above, we are now recording for the twenty-second volume, which will contain animals recorded in 1905.

EXTRACTS FROM BY-LAWS.

Section 1—Persons desirous of becoming members shall so notify the Secretary, pay the entrance fee, and agree, if elected, to conform to the rules of the Association, and not to withdraw without paying all fees due and giving three months' notice of their intention of doing so.

Section 2—Members shall pay an entrance fee of $2.00, and subsequently an annual subscription of $2.00, which annual subscription shall be due and payable on the first of January of each year.

Section 5—Members must keep the Secretary advised of their post-office address, and all communications shall be considered as delivered which have been mailed, properly addressed and prepaid.

New By-law—That all calves dropped after January 1st, 1889, shall in future to be registered within twenty-four months of birth, and if not so registered, enlarged fees shall be charged for their registration.

Section 15—Fees.—Charges for registration will be:
To members, registration and certificate.....$0 75 for each animal.
To non-members, registration and certificate 1 25 " "
Over age, to members (in all cases a certificate goes with registration) ..... 1 00 " "
Over age, to non-members (in all cases a certificate goes with registration)..... 1 75 " "
Change of ownership, 25c.; duplicate certificate, 25c.
Back volumes of Herd Books, $2.00 each.

HENRY WADE, Secretary-Treas.

FINANCIAL STATEMENT.

RECEIPTS.

1904.		
Cash on hand		$5,513 93
Fees from 1,700 old members, and from 305 new members, total 2,005		4,010 00
Registration Fees for 9,648 Pedigrees	$8,402 25	
Registration Fees for 3,930 Transfers	982 50	9,384 75
Interest on deposit		224 85
Herd Books sold (65)		130 00
		$19,263 53

EXPENDITURE.

1904.	
Insurance	$19 79
Printing	187 80
Stationery	408 88
Postage — Letters, $422.83; Books, $90.33; Forms, $74.86	588 02
Old volumes bought, 221 at $1	221 00
Auditor and stenographer...	97 50
Telegrams and sundries ...	51 40
Express on books	602 64
Binding old volumes, $5.35; 100 set Vols. XVI. and XVII., $200; 401 Vols. XVII., $200.50; 152 Vols. XVI., $76; 160 Vols. XVIII., $112.75; 504 Vols. XIX., $277.20	871 80
Printing 2,000 copies Vol. XX, $2,631.60; binding 500 copies of same, $270...	2,901 60
Directors and committee expenses	542 25
Expenses, directors' annual meeting	125 00
Prizes (Exhibitions), $4,148.00; Dominion Cattle Breeders' Association, for prizes, $711	4,859 00
Rent of hall, Toronto, $5.50; rent of tent, Winnipeg, $14	19 50
Expenses, Live Stock Convention	57 50
Advertising for back volumes Herd Book	26 92
Subscription to Thornton's Circular	6 00
Office furniture, repairs and additions	72 35
Commission on 9,648 pedigrees at 35c., $3,376.80; on 3,930 transfers at 10c., $393	3,769 80
Balance on hand	3,834 78
	$19,263 53

ASSETS, DEC. 31, 1904.

Cash	$3,834 78	
Office furniture, books, etc.	150 00	
1,347 Herd Books at $1.50...	2,020 50	
4,344 Herd Books at $2.00...	8,688 00	
	$14,693 28	$14,693 28

I hereby certify that I have examined the books and accounts of the Dominion Shorthorn Breeders' Association for the year ending December 31st. 1904, and that the above statement is in accordance with the same.

CHAS. F. COMPLIN, Auditor.

Toronto, January 7th, 1905.

SHORTHORN BREEDING.

BY W. D. FLATT, HAMILTON.

It is customary for us to meet here each year for the purpose of considering the past year's business, exchange ideas and plan for the future.

In looking over the past we must say that Providence has been kind to us and that we have no cause to complain.

Being one of your young members, I possibly cannot judge so well of the past and future of Shorthorn cattle as many older members of this Association, but it is only reasonable that any person would look well into the past history of Shorthorns, and also the future before starting a herd. In looking over the past, history teaches us that Shorthorns go up and down in price the same as any commodity, it matters not how staple, and if we are to be guided in our breeding operations by the line pursued by the shrewdest, far-seeing men of the day in transacting general business, then it must teach us that when prices are at their lowest point is the opportune time to increase and build our herds up to the highest standard, and for those who contemplate starting herds to purchase. The last low prices previous to 1899 were caused by a general dairy craze sweeping over our Dominion, and also through many parts of United States. There is no question about this; you can see traces of it throughout the land to-day. That it was a great mistake all classes now admit; but for a time there was little demand for bulls of beef breeds, and little value placed upon the females. The agriculturists have learned that if they are to make a success of purely dairy farming it is necessary for them to keep the best dairy cows obtainable.

Those who are engaged in general farming have learned that they cannot farm with success without keeping live stock to maintain the fertility of the soil, it being their chief asset, and that it pays to feed on the farm and to only feed animals that will give the greatest gain per day. It has been proven that no bull of any other breed will make the same improvement on grade cattle on ranch or farm as the Shorthorn bull, and if attention has been paid to the milking qualities he will prove profitable for the dairy men to use. The greatest Dairy Herds in Great Britain are grade; Shorthorn cows and Shorthorn bulls are used on them each season. Shorthorns were profitable in Canada in 1898, 1899, and 1900. They were too high in price during 1901 and 1902. They have been selling at profitable prices during 1903 and 1904. It is indeed unreasonable and detrimental

to the breed for any breeder to wish that they had remained up to the high point of 1901 and 1902, and the only reason to-day why Shorthorn cattle will not continue to pay at least 20 per cent. with proper care and reasonable luck, would be a lack of confidence by the breeders in general.

Let us depart from the past and look squarely into the future. We are all agreed that live stock must be kept on the farms, and we also fully agree that it does not pay to feed the scrub. We also know that our country is developing fast, thus affording us a much larger home market than ever before, both for fat and breeding cattle, transportation facilities are being so improved that we can ship to any point of the compass, and we can always rest assured that our good cattle will command profitable prices both at home and abroad.

Are we breeding a class of cattle that are likely to be supplanted by any other breed in existence? The unprejudiced answer must be decidedly, "No." Shorthorns have been bred for centuries, and they have more followers by odds to-day than all other breeds combined.

The Shorthorns originated in our mother country, Great Britain, and if any Canadian was in doubt about the future of the breed that doubt would have been forever dispelled had he witnessed the recent sale at Uppermill in October last, when the late Mr. W. S. Marrs' herd was disposed of owing to his sad and sudden death, the average on 113 head being over $780, a total of $88,290. Every animal was sold separately, excepting in one instance. The same afternoon Mr. Duthie disposed of his season's crop of bull calves, eighteen in number, at an average of over $1,132 per head, total for the eighteen being $20,495.00. Some of these cattle were purchased by Argentine gentlemen. The bulls are taken there for use on Shorthorn cows in the Argentine, with a view of producing bulls to use on their ranch cattle, but the greater number were purchased by the canny Scot, the hard headed Englishman, and the shrewd Irishman. These people know the value of Shorthorn cattle, and have a growing and abiding faith in the breed they originated.

We have a climate that will assist us in breeding Shorthorns, we can grow suitable feed to develop them, and, best of all, we have the men that will build up great herds in our favored land, and thereby assist in improving the cattle of our Dominion.

Considering all these things, the outlook is bright, and we must not forget that the Canada of to-day is a figure in the world and the world may as well be aware of it. There is a rising national spirit such as never existed here before, and a feeling of confidence in the future of Canada that cannot be shaken.

Mr. Johnston moved that the thanks of the Association be accorded Mr. Flatt for his excellent paper, and that the usual award of $5 be made.

Capt. Robson seconded the motion, and Mr. Flatt replied modestly concerning the paper, and turned the $5 over as prize money.

Mr. A. W. Smith, upon a motion to adopt the report of the Executive concerning prize money distribution, spoke at length on the advisibility of making the usual grant of 50 cents a member to the Cattle Breeders' Association, and moved,—

"That the Association make our members members of the Cattle Breeders' Association in the Provinces in which they reside, the amount of money to remain entirely at the disposal of the Executive of this Association, to be apportioned by them as they consider proper and appropriate."

Mr. Johnston, in seconding the motion, said the Association would be making a mistake unless it endeavored in some manner to retain the co-

operation of all the pure breeders of cattle by which they could influence either Governments or corporations.

Mr. Flatt regretted what he deemed an attempt by the previous speakers to throw the Dominion Shorthorn Breeders' Association overboard for the Cattle Breeders' Association. They were present, he asserted, to plead the cause of F. W. Hodson, were in fact tools in his hands. F. W. Hodson figured on removing the Shorthorn Association to Ottawa under political rule through the Cattle Breeders' Association. If they made themselves members of that Association they placed themselves in the position of acquiescing in all they did, and if the Cattle Breeders could be represented as agreeable to the transfer F. W. Hodson's hands would be strengthened with the Minister of Agriculture. If they were going to give grants, they should give them as such, and he questioned whether they sold one Shorthorn bull more or got any better rate because of the Cattle Breeders' Association.

Both Messrs. Smith and Johnston repudiated the insinuation that they were "tools" in the hands of F. W. Hodson, or held a brief for him.

Mr. Miller pointed out that though the Shorthorn Breeders' Association had been giving 50 cents a head to make its 1,400 odd Ontario members members of the Cattle Breeders' Association, not more than 25 names of the Shorthorn Breeders appeared in their membership list. "Why," said Mr. Miller, "Mr. Johnston, who has acted President of that Association, is not a member of it at all." (Laughter.)

When the vote was taken only four members supported the motion, which was, of course, declared lost.

NATIONAL CONVENTION REPORT.

Mr. Miller reported on behalf of the delegates to the National Convention. Two questions had been dealt with. One, the control of the Central Office, came up early in the Convention which, to a man, seemed opposed to the taking away of the control of the work from the Shorthorn Breeders' Association themselves. They had the Association commit itself as strongly as possible to this view. Mr. Hodson also took that position, but the natural drift of the work of the Convention disclosed a tendency to get some sort of control, and they had Mr. Hodson commit himself again. They concluded, as a Shorthorn Association, that they required a Dominion seal to give them a status, and to show in foreign countries that the Association had the sanction of the Dominion Government. But those in charge of the matter could not reach a conclusion. "I was not politician enough," explained Mr. Miller, "to make a seal of that kind that did not mean anything. It looked to me, no matter how we arranged that stamp, we placed ourselves in this position: that that certificate had to go to head-quarters in Ottawa to get that seal and the sanction we were looking for. Since that time we are stating on each certificate that we were incorporated under the Dominion Act in the year 1901. I think perhaps that will be all that is necessary."

Mr. Miller then touched on the question of importation restrictions, advocating the meting out of the same kind of treatment to foreign countries as they meted out to Canada. "I think that we have a good market in the North West Territory," he said. "I believe that we can make a move, or influence the Dominion Government to make a move in the direction of giving us all those benefits from our own market that we are entitled to. We ought to make that move and try to influence them." (Applause.)

It was then moved by W. D. Flatt, and seconded by John Isaac, "That we the members of the Dominion Shorthorn Breeders' Association appeal to the Dominion Government to make it necessary, that in order to import cattle for breeding purposes free of duty, that such animals be first registered in Canadian Records or the Records we recognize for a breed when there is none in Canada. That no person can import free of duty any cattle unless such person is a British subject and a bona fide resident of the Dominion.

"We think this necessary for the following and many other reasons:

"First, that we are to a great extent confined to our own country for a market, and we should have every assistance to make the most of that market.

"Second, that there are large numbers of cattle called pure-bred being shipped into Canada and peddled through the country by strangers and aliens, that could not be sold at home, and that will do a great injury to the cattle and the cattle business in Canada."

This motion was endorsed by the President, who said they had the cattle and they had the men, and they should pass such laws as would oblige the outsiders to come and buy our cattle. "Let them fight it out among themselves," he said, "and they will be only too glad to come here and buy our cattle in a very few years."

The resolution was carried unanimously.

It was also moved by Mr. A. W. Smith, and seconded by J. M. Gardhouse, and resolved, "That we the members of the Dominion Shorthorn Breeders' Association are firmly of the opinion that the conduct of our business should be kept altogether under the control of the Shorthorn Breeders that constitute our membership, and that we would oppose any suggestion in the direction of taking from us such control, even to the slightest extent, with the whole of our power." Carried unanimously by standing vote.

Moved by Mr. A. Johnston, seconded by Mr. W. J. Pettit, "That in the opinion of the Dominion Shorthorn Breeders' Association the suggestion that has been made by the Provincial Superintendent of Agricultural Societies, that the number of agricultural societies in Ontario should be reduced and that societies should receive their Government grants in proportion to the amount they expend for purely agricultural purposes, is a move in the right direction. We are of the opinion that were there fewer exhibitions and were societies to receive their grants in proportion to what they expend for agriculture, one great cause for the introduction of undesirable features at fall fairs would be removed, and larger prizes would be offered, better exhibits of live stock would be made, and that the agricultural interests of the Province would be better promoted." Carried.

Moved by Mr. Flatt, seconded by Mr. Gardhouse, "That the Association continue subscription of $100 to A. P. Westervelt to help pay men in charge of Association cattle car for the West." Carried.

ELECTION OF OFFICERS.

Mr. Linton retired from the presidency, which position he had so ably filled for several years, and Mr. Pettit was chosen by the Association to succeed him. Mr. Pettit briefly returned thanks for the honor done him.

On motion of Mr. Miller, seconded by Mr. Flatt, Mr. Linton, the retiring President, was made an honorary life member of the Association. Mr. Linton replied feelingly.

OFFICERS FOR 1905.

PRESIDENT: W. G. Pettitt, Freeman.

FIRST VICE-PRESIDENT: A. W. Smith, Maple Lodge.

SECOND VICE-PRESIDENT. W. D. Flatt, Hamilton.

EX-PRESIDENTS—LIFE MEMBERS:

Hon. John Dryden, Brooklin.
A. Johnston, Greenwood.
Robert Miller, Stouffville.
Richard Gibson, Delaware.
James Russell, Richmond Hill.
Wm. Linton, Aurora.

VICE-PRESIDENTS FROM PROVINCES:

Capt. T. E. Robson, Ilderton, Ont.
F. G. Bovyer, Georgetown, P.E.I.
W. H. Ladner, Ladner's Landing, B.C.
Wm. H. Gibson, Pointe Claire, Que.
Bliss Fawcett, Sackville, N.B.
Hon. W. Beresford, Calgary, Alta.
C. A. Archibald, Truro, N.S.
Geo. Kinnon, Cottonwood, Assa.
W. S. Lister, Middlechurch, Man.

BOARD OF DIRECTORS:

B List.

P. Talbot, Lacombe, Alta.
J. T. Gibson, Denfield.
H. Smith, Hay.
John Davidson, Ashburn.
John Gardhouse, Highfield.

C List.

W. D. Cargill, Cargill.
S. Dyment, Barrie.
John Isaac, Markham.
Geo. Raikes, Barrie.
C. M. Simmons, Ivan.

A List.

J. G. Barron, Carberry, Man.
F. W. Brown, Portage la Prairie, Man.
James M. Gardhouse, Weston.
E. C. Attrill, Goderich.
Thomas Russell, Exeter.

EXECUTIVE AND FINANCE COMMITTEE: A. W. Smith, Maple Lodge; J. M. Gardhouse, Weston; W. G. Pettit, Freeman; W. D. Flatt, Hamilton; Robert Miller, Stouffville.

DELEGATES:

DOMINION CATTLE BREEDERS' ASSOCIATION: John Isaac, Markham; T. E. Robson, Ilderton.

INDUSTRIAL EXHIBITION: W. G. Pettit, Freeman; Robert Miller, Stouffville.

WESTERN FAIR: James Crerar, Shakespeare; C. M. Simmons, Ivan.

CENTRAL FAIR, OTTAWA: Norman Wilson, M.P., Cumberland; D. McLaren, Dunmore.

PROVINCIAL EXHIBITION, HALIFAX, N.S.: F. L. Fuller, Truro, N.S.; F. W. Thompson, St. Lawrence, N.S.

PROVINCIAL EXHIBITION, NEW BRUNSWICK: Senator Josiah Wood, Sackville, N.B.; Bliss Fawcett, Sackville, N.B.

PROVINCIAL EXHIBITION, PRINCE EDWARD ISLAND: C. C. Gardiner, Charlottetown, P.E.I.; F. G. Bovyer, Georgetown, P.E.I.

WINNIPEG INDUSTRIAL EXHIBITION: Dr. A. G. Hopkins, Winnipeg; J. G. Washington, Ninga, Man.

Calgary Exhibition: R. K. Bennett, Calgary, Alta; Hon. Wm. Beresford, Calgary, Alta.

Brandon, Man., Exhibition: Henry Nichol, Brandon, Man.; Wm. Chalmers, Hayfield, Man.

Regina, Assa., Exhibition: George Kinnon, Cottonwood, Assa.; Paul Brett, Regina, Assa.

New Westminster Exhibition: T. W. Patterson, Ladner, B.C.; W. H. Ladner, Ladner, B.C.

Victoria Exhibition: F. C. Pemberton, Victoria, B.C.

Sherbrooke, Que., Exhibition: H. J. Elliott, Danville, Que.; H. W. Burton, Huntingville, Que.

Maritime Winter Fair, Amherst, N.S.: J. Rupert Coates, Nappan, N.S.; C. A. Archibald, Truro, N.S.

(All communications should be addressed to the Secretary.)

H. Gerald Wade,
Assistant Secretary and Editor, Toronto.

Henry Wade,
Secretary and Editor, Toronto.

While the scrutineers were counting the ballots Mr. C. C. Gardner, of Charlottetown, P. E. I., was called on for a few remarks. He regretted that Shorthorn matters were not in as good shape in the Maritime Provinces as they ought to be. He urged the necessity of clear breeding on the male side. Eastern Shorthorn people did not seem to understand that, and while they bred quite extensively they did not breed in the right way. To breed in the right way was the hardest thing to teach the eastern breeders. He thought that for the breeding of common cattle there was nothing like Shorthorns, and he also thought more might be said for the milking strains of that class.

SHORTHORN ADVANCE.

By Senator C. W. Edwards, Rockland.

Senator Edwards regretted that he had not oftener been able to attend the meetings of the Association, but he was a very, very busy man. He told of how, in 1861, when a very small boy, he went to Peterborough and bought three female Shorthorns and a bull from Mr. John Walton, who was a breeder there at that time. He brought them down to Kingston by the G. T. R. and then shipped them by steamboat through the Rideau Canal to Ottawa. In 1868 he laid the foundation of his present herd by buying from the late John Miller, of Brougham, two females and a bull. He afterwards bought from Mr. Dryden, and had, in later years, imported rather extensively. He then said: I may tell you very frankly, I am in the Shorthorn business because I am a lover of the Shorthorn animal. I am a natural lover of horses and always have been, but of all animals I believe I love Shorthorns more than any other. (Applause.) I think it a great mistake for breeders, in promoting and advocating the merits of the breed which we admire ourselves, to decry any other breed. That, personally, I would never do. Therefore I think, while a Shorthorn man, that there are parts of our country not adapted to Shorthorns, and that other breeds of animals are more adapted to particular districts. The breeding of

Shorthorns requires men of large hearts and souls, and without these requisites a man should breed some smaller animal. (Laughter and applause.) A mistake is made by some who buy an animal, and think it is not necessary to feed it, and that care is not required. I have been long enough in the business to find that if you want to develop the very best class of Shorthorns, the very best treatment and care is necessary, and a man must not be afraid to feed generously, while, of course, feeding judiciously. There is room for all these breeds of ours. If a little country like Britain can be the home of so many breeds, there is certainly room in Canada for all, and when we are advocating, as we do advocate, the animals we love the best we should not, as I said before, decry any of the other breeds. The Shorthorn breed is too noble a breed, too cosmopolitan a breed, to require any special advocacy. The fact is, that the Shorthorn stamps his type wherever he goes as perhaps no other breed does.

Various opinions are expressed with regard to what is best to do in the future. My own opinion is that if we are to maintain the strong position which we have obtained our aim must be still higher and every man who is engaged in breeding that noble type of animal should from time to time try to improve his herd, and in my judgment, apart from good care the best means of improvement is, each time you buy a sire, to endeavor to buy a better sire than his predecessor.

The Senator then referred to Canada's proud position in the breeding world. They had advantage of country and of climate, and should make use of the advantage they possessed and show to the world that here in Canada they would always supply, as he believed they always could supply, the chief breeding animals for the American continent. He announced himself as an out-and-out free trader, but did not care to oppose his views to that of the Association when the resolution regarding restrictions was under discussion. He stood for no restrictions in trade, and for buying in the best market and selling in the best. However, it was a very small piece of business on the part of the Americans, this matter of restrictions.

In the matter of removing to Ottawa the Senator said: I am a believer in the Dominion Shorthorn Association maintaining itself in its entirety and exercising its own will. I am a thorough believer in that. I do not think this Association should in any way delegate its authority. But there is a difficulty at the present time with regard to the transportation of pure-bred animals that may be sold. I think now we are in the position of having to pay full freight upon these animals. Now, while I am opposed to the centralization at Ottawa of these associations, and the giving up of your independence, I at the same time think that, while maintaining your integrity entire and controlling your own affairs, an arrangement could be made whereby you could get the endorsation of the Dominion Government. If that could be accomplished you would not be at all hurt, and I think this matter of transport could be arranged.

I congratulate you heartily upon the advances this great Association has made. If I cannot be with you as frequently as I would like to, my whole heart and soul is with you, and I hope you will continue to go on and grow and prosper. I am down in the extreme end of the Province trying to breed Shorthorns. I never expect to make any money out of the enterprise, but with you I hope to be one that may be classed among the good breeders. I hope, while I live, to be able to maintain a good herd, and certainly shall make the best efforts I can in that direction. I would like to see a series of sales held annually by the breeders independent of any live stock association. That in time would accomplish a great deal of good.

Under new business, Captain Robson in a short sympathetic address expressed the regret of the Association at the death of the late John Miller, of Brougham, and moved that the Executive committee be instructed to prepare a letter of condolence with the family, expressing the heartfelt sympathy of the Association in the loss sustained by them, and that the letter be engrossed and illuminated.

Mr. A. Johnston, as a near neighbor of the late Mr. Miller, seconded the motion, and paid a high tribute to the deceased as a man and a breeder. His influence had served to attract to the standard of the Association many men who would never have become interested. In this respect Mr. Miller had a unique history.

SHORTHORN PRIZE-WINNERS AT THE CANADIAN NATIONAL EXHIBITION, TORONTO, 1904.

Bull, 3 Years Old and Upwards.

1st. Prince Sunbeam (imp.) =45216= (81964) roan, calved May 5, 1901; bred by Robt. Bruce Heatherwick, Inverarie, Scot.; exhibited by Sir Wm. VanHorne, Selkirk, Man.; got by Prince of Archers (72490); dam Sunbeam 4th, by Seneca (63346).

2nd. Lord Chesterfield =40610= light roan, calved Feb. 5, 1901; bred by T. Redmond, Millbrook, Ont.; exhibited by J. G. Robbins & Sons, Horace, Ind.; got by Sailor Champion =27235=; dam Matchless 41368= by Prime Minister (imp.) =15280 (63104).

3rd. Valasco 40th =30861= white, calved Oct. 27, 1898; bred by R. & S. Nicholson, Sylvan, Ont.; exhibited by W. B. Watts' Sons, Salem, Ont.; got by Indian Brave =21500=; dam Vacuna 35th =30536=, by Norseman =16397=.

4th. Village Champion (imp.) =40433= (82538) red; calved Feb. 16, 1901; bred by Wm. Duthie, Collynie, Scot.; exhibited by W. C. Edwards & Co., Rockland, Ont.; got by Scottish Champion (75598); dam Village Maid 17th, by Master of the Ceremonies (56162).

Bull, 2 Years Old and Under 3.

1st. Gold Drop =43723= red; calved Oct. 11, 1901; bred by H. Cargill & Son, Cargill, Ont.; exhibited by H. Smith, Exeter, Ont.; got by Golden Drop Victor (imp.)=32065=(76780); dam Golden Gift (imp.) =37942=; by Cyprus (66894).

2nd. Invincible 43214= red and little white; calved Oct. 3, 1901; bred by McDonald Bros., Woodstock, Ont.; exhibited by G. H. Oke, Alvinston, Ont.; got by Sir Tatton =28797=; dam Sunnyside Mina =20961=, by Cashier =4403=.

3rd. Gay Lothario (imp.) =45178= roan; calved Feb. 25, 1902; bred by Jno. Wilson, Lower Pirriesmill, Huntley, Scot.; exhibited by Richard Gibson, Delaware, Ont.; got by Prince of Sanquhar (71251); dam Lavender Thyme 5th, by Sennacherib (67893).

4th. Scottish Prince (imp.) =50090= (84728) roan; calved March 22, 1902; bred by Alex. Watson, Auchronie, Scot.; exhibited by J. Gardhouse & Sons, Highfield, Ont.; got by Golden Champion (78977); dam Queen Mab, by Nero (67530).

Senior Yearling Bull, Calved Before Jan. 1, 1903, and Under 2 Years.

1st. Clipper Prince =44786= red; calved Oct. 29, 1902; bred and exhibited by Hon. Jno. Dryden & Son, Brooklin, Ont.; got by Prince Gloster =40998=; dam Constance=39445=, by Revenue =20153=.

2nd. Remus =48537= red; calved Sept. 11, 1902; bred and exhibited by Goodfellow Bros., Maeville, Ont.; got by Shining Light =38920=; dam Gypsy Maud =29819=, by Golden Crown (imp.) =17098= (64088).

3rd. Breastplate =48514= roan; calved Nov. 11, 1902; bred and exhibited by J. & W. Russell, Richmond Hill, Ont.; got by Fitz-Stephen Forester (imp.) =36030=; dam Rosabel 3rd =28877=, by Lord Stanley 17849=.

4th. White Hall Ramsden =53308= 20977, dark roan; calved Oct. 12, 1902; bred by E. S. Kelly, Yellow Springs, O.; exhibited by T. E. Robson, Ilderton, Ont.; got by White Hall Sultan 163573; dam White Hall Edna, by Morning's Pride 153005.

Junior Yearling Bull, Calved on or After Jan. 1, 1903.

1st. Eden Prince 48695= red; calved Jan. 8, 1903; bred and exhibited by Hon. Jno. Dryden & Son, Brooklin, Ont.; got by Prince Gloster =40990=; dam Bonnie Beauty =35203=, by Revenue 21053=.

2nd. Admiral Chesterfield =48911= light roan; calved Jan. 8, 1903; bred by P. Stewart, Everton, Ont.; exhibited by T. E. Robson, Ilderton, Ont.; got by Lord Chesterfield =40610=; dam Lady Aberdeen =58610=, by Eramosa Admiral 29309=.

3rd. Vain Baron =48584= roan; calved Jan. 3, 1903; bred by T. E. Robson, Ilderton, Ont.; exhibited by Sir Wm. Van Horne, Selkirk, Man.; got by Vanguard =37139=; dam Isabella 14th =48080=, by Maxim =24864=.

4th. Old Lancaster (imp.) =50068= roan; calved March 20, 1903; bred by Alex. Crombie, Woodend, New Machar, Scot.; exhibited by Geo. Amos & Son, Moffat, Ont.; got by King Robert (76962) dam Lovely, by Coldstream (60510).

5th. Royal Star =49775= red; calved Jan. 4, 1903; bred by Jno. Watt, Salem, Ont.; exhibited by J. Watt & Son, Salem, Ont.; got by Coming Star =39506=; dam Idylwild 2nd =33934=, by Rantin Robin (imp.) 18958= (66104).

SENIOR BULL CALF, CALVED BEFORE JAN. 1, 1904, AND UNDER 1 YEAR.

1st. Marigold Sailor =53258=, dark roan; calved Nov. 2, 1903; bred and exhibited by Thos. Redmond, Millbrook, Ont.; got by Sailor Champion =27355=; dam Marigold 6th =28816=, by Prime Minister (imp.) =15280 (63104).
2nd. Red Champion =51814=, red; calved Sept. 11, 1903; bred and exhibited by W. C. Edwards & Co., Rockland, Ont.; got by Village Champion (imp.) =40433=; dam Ruby 30th (imp.) =43552=, by Mountain Archer (71046).
3rd. Lavender Lad =53230=, red; calved Oct. 20, 1903; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Lavender of Hill Farm 17th, by Baron Cruickshank (imp.) =45158=.
4th. Bertie's Hero =52673=, red and white; calved Nov. 11, 1903; bred and exhibited by Hon. Jno. Dryden & Son, Brooklin, Ont.; got by Clipper Hero =44785=; dam Bertie 4th =49929=, by Prince Gloster =40998=.
5th. Royal Coronet =45241=, red; calved Nov. 29, 1903; bred by C. L. Gerlaugh, Osborne, Ohio; exhibited by W. G. Pettit & Sons, Freeman, Ont.; got by Bapton Coronet (imp.) =50014=; dam Lustre 43rd (imp.) =54011=, by Cyprus (66894).

JUNIOR BULL CALF, CALVED ON OR AFTER JAN. 1, 1904.

1st. Count of Monte Christo =53213 red, little white; calved Jan. 9, 1904; bred and exhibited by R. & S. Nicholson, Sylvan, Ont.; got by Spicy Count (imp.) =50095=; dam Pine Apple of Sylvan 2nd =57584=, by Chief of Stars (imp.) =32054= (72215).
2nd. Blythsome Ruler =52236= roan; calved Feb. 12, 1904; bred by J. M. Gardhouse, Weston, Ont., exhibited by E. C. Atrill, Goderich Ont.; got by Chief Ruler (imp.) =45165=; dam Missie 159th (imp.) =34154=, by Spicy Robin (69638).
3rd. Trout Creek Guard =52976= red; calved Jan. 10, 1904; bred by W. D. Flatt, Hamilton, Ont.; exhibited by Sir Wm. VanHorne, Selkirk, Man.; got by Spicy Marquis (imp.) =36118=; dam Crimson Rose =33369=, by British Officer =26413=.
4th. Scotchman =53328= roan; calved Jan. 20, 1904; bred and exhibited by Jas. A. Crerar, Shakespeare, Ont.; got by Scottish Hero (imp.) =36102=; dam Rosabel 2nd =26627=, by 10th Crown Jewel =16607=.
5th. Rob Roy =51799=, roan; calved Jan. 4, 1904; bred and exhibited by W. C. Edwards & Co., Rockland, Ont.; got by Village Champion (imp.) =40433=; dam Rosa (imp.) =34205=, by Statesman (71687).

BULL, SENIOR CHAMPION, OVER 2 YEARS.

1st. Prince Sunbeam (imp.) =45216= (81964); exhibited by Sir Wm. VanHorne, Selkirk, Man.

BULL, JUNIOR CHAMPION, UNDER 2 YEARS.

1st. Marigold Sailor =53258=; exhibited by T. Redmond, Millbrook, Ont.

BULL, GRAND CHAMPION.

1st. Prince Sunbeam (imp.) =45216= (81964); exhibited by Sir Wm. VanHorne, Selkirk, Man.

COW, 3 YEARS OLD AND OVER.

1st. Mayflower 3rd =40878= roan; calved Dec. 4, 1898; bred by Wm. McDermott, Living Springs, Ont.; exhibited by Sir Wm. VanHorne, Selkirk, Man.; got by Royal Sailor (imp.) =18959=; dam Living Spring Lass =16308=, by King William =9307=.
2nd. Lad's Lady =Vol. 21=, red; calved Oct. 9th, 1900; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Monarch's Lady 2nd, by Gay Monarch (imp.) 92411.
3rd. Lad's Rose =Vol. 21= red; calved Feb. 14, 1901; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Blooming Rose, by Success 110368.
4th. Water Cress (imp.) =38181= roan; calved Jan. 25, 1899; bred by Jas. Thompson, Balbegno, Scot.; exhibited by Goodfellow Bros., Macville, Ont.; got by Marshfield (62980); dam Wilfrid 4th, by Marchfield (62980).

HEIFER, 2 YEARS OLD AND UNDER 3.

1st. Missie of Pine Grove (imp.) =48684= dark roan; calved Jan. 7, 1902; bred by W. S. Marr, Uppermill, Scot.; exhibited by W. C. Edwards & Co., Rockland, Ont.; got by Bapton Favorite (76080); dam Missie 153rd (imp.) =43543=, by Wanderer (60138).
2nd. Lad's Missie =21= roan; calved Nov. 22, 1901; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Trout Creek Missie, by Carlisle 156128.
3rd. Mildred 12th =53464= roan; calved Oct. 25, 1901; bred by J. & W. B. Watt, Salem, Ont.; exhibited by Sir Wm. VanHorne, Selkirk, Man.; got by Roan Cloud =31317=; dam Mildred 7th =33937=, by Royal Sailor =18959=.
4th. Lady Fanny 9th =50519= red roan; calved March 11, 1902; bred by Wm. Mackintosh, Burgoyne, Ont.; exhibited by Israel Groff, Alma, Ont.; got by Golden Court =26440=; dam Lady Fanny 7th =36202=, by Lord Lovell's Heir =20337=.

SENIOR YEARLING HEIFER, CALVED BEFORE JAN. 1, 1903, AND UNDER 2 YEARS.

1st. Lad's Emma =Vol. 21= red and white; calved Sept. 25, 1902; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Emma 32nd (imp.) by Captain of the Guard 132059.
2nd. Tiny Maud =59014= red and white; calved Oct. 4, 1902; bred by Jno. Bricker, Elmira, Ont.; exhibited by W. B. Watts' Sons, Salem, Ont.; got by Heir of Neidpath =20692=; dam Elmira Flora =31470=, by Scottie =20449=.
3rd. Lady Dorothy 41st (imp.) =54109= roan; calved Oct. 28, 1902; bred by A. Moir, Waterton, Scot.; exhibited by T. E. Robson, Ilderton, Ont.; got by Pride of Fame (81886); dam Lady Dorothy Fox (imp.) =48514=, by Scottish Victor (69557).

4th. Maria 12th =48854=: roan; calved Dec. 2, 1902; bred and exhibited by Geo. Amos & Son, Moffat, Ont.; got by Nonpareil Archer (imp.) =45202 .; dam Mattie (imp.) =48580=, by Lovat's Chief (72945).

JUNIOR YEARLING HEIFER, CALVED ON OR AFTER JAN. 1, 1903.

1st. Zoe of Pine Grove 3rd =55465=: red; calved Jan. 15, 1903; bred and exhibited by W. C. Edwards & Co., Rockland, Ont.; got by Marquis of Zenda (imp.) =26064=; dam Zoe 4th (imp.) =38027 .=, by Lord James (67361).
2nd. Collynie Bashful (imp. =54047=: roan; calved Feb. 8, 1903; bred by Wm. Duthie, Collynie, Scot.; exhibited by Sir Wm. VanHorne, Selkirk, Man.; got by Royal Edward (82153); dam Bashful, by Sirdar (75654).
3rd. Gem of Balledine 3rd =55105=: red and white; calved March 19, 1903; bred and exhibited by J. A. Crerar, Shakespeare, Ont.; got by Captain Mayfly (imp.) =28858=; dam Gem of Balledine 2nd =39276=, by Diamond Jubilee (imp.) =28861 .
4th. Missie of Pine Grove 5th =55457=: red; calved Jan. 2, 1903; bred and exhibited by W. C. Edwards & Co., Rockland, Ont.; got by Marquis of Zenda (imp.) =26054 .; dam Missie 166th (imp.) =34299=, by Captain Inglewood (74177).
5th. Lady Hampton =54213=: red; calved April 28, 1903; bred by C. C. Bigler & Sons, Hartwick, Iowa; exhibited by Geo. Amos & Son, Moffat, Ont.; got by Merry Hampton (imp.) =50060= (73063); dam Monarch's Lady=20=, by Gay Monarch (imp.) =40381=.

SENIOR HEIFER CALF, CALVED BEFORE JAN. 1, 1904.

1st. Spicy Duchess =Vol. 21=: roan; calved Sept. 28, 1903; bred by W. D. Flatt, Hamilton, Ont.; exhibited by Sir Wm. VanHorne, Selkirk, Man.; got by Spicy Marquis (imp.) =36118= (80032); dam Duchess of Farquhar 3rd (imp.) =48423=, by Scotch Thistle (73584).
2nd. Felicia =Vol. 21=: rich roan; calved Sept. 22, 1903; bred by H. K. Fairbairn, Thedford, Ont.; exhibited by W. B. Watts' Sons, Salem, On.; got by Royal Prince =31241=; dam Frances Folsom 3rd =23522=, by Royal Albert =13020=.
3rd. Pluto's Berry =Vol. 21=: red; calved Nov. 15, 1903; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by Pluto of Dalmeny 190925; dam Blueberry, by Success 110368.
4th. Golden Sunbeam =Vol. 21=: roan; calved Sept. 21, 1903; bred and exhibited by Hon Jno. Dryden & Son, Brooklin, Ont.; got by Prince Gloster =40998 .; dam Golden Star =30457=, by Revenue =21053=.
5th. Lady Hope of Ridgewood =54280=: roan; calved Sept. 15, 1903; bred by Geo. Isaac, Bomanton, Ont.; exhibited by E. C. Attrill, Goderich, Ont.; got by Nonpareil Archer (imp.) =54202= (81778); dam Lady Hope (imp.) =48569=, by Abbotsford 2nd (69838).

JUNIOR HEIFER CALF, CALVED ON OR AFTER JAN. 1, 1904.

1st. Lad's Clara 2nd =Vol. 21=: red; calved Jan. 2, 1904; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Clara 55th (imp.), by Spicy Robin 134687.
2nd. Queen Sunbeam =Vol. 21=: roan; calved Jan. 7, 1904; bred and exhibited by T. E. Robson, Ilderton, Ont.; got by Prince Sunbeam (imp.) =45216= (81964); dam Queen of Moreton 3rd =28762=, by British Chief =11243=.
3rd. Scottish Lass =Vol. 21=: roan; calved Jan. 20, 1904; bred and exhibited by J. A. Crerar, Shakespeare, Ont.; got by Scottish Hero (imp.) =36102 .= (79921); dam Daisy B. =49675=, by Captain Mayfly (imp.) =28858=.
4th. Springhurst's Gem =Vol. 21=: roan; calved Jan. 3, 1904; bred and exhibited by H. Smith, Exeter, Ont.; got by Gold Drop =42723=; dam Snowflake 4th =20191=, by Victoria Duke =11761=.
5th. Lad's Emma 2nd =Vol. 21=: red; calved Feb. 13, 1904; bred and exhibited by J. G. Robbins & Sons, Horace, Ind.; got by The Lad For Me 140618; dam Emma 32nd (imp.) by Captain of the Guard 132059.

SENIOR CHAMPION FEMALE, OVER 2 YEARS.

1st. Mayflower 3rd =40878 .; exhibited by Sir Wm. VanHorne, Selkirk, Man.

JUNIOR CHAMPION FEMALE, UNDER 2 YEARS.

1st. Lad's Emma =Vol. 21=; exhibited by J. G. Robbins & Sons, Horace, Ind.

FEMALE GRAND CHAMPION.

1st. Mayflower 3rd =40878 .; exhibited by Sir Wm. VanHorne, Selkirk, Man.

GRADED HERD, BULL 2 YEARS OLD AND OVER, COW 3 YEARS OR OVER, HEIFER 2 YEARS AND UNDER 3, HEIFER 1 YEAR AND UNDER 2, AND HEIFER UNDER 1 YEAR.

1st. Sir Wm. VanHorne, Selkirk, Man.
2nd. J. G. Robbins & Sons, Horace, Ind.
3rd. W. C. Edwards & Co., Rockland, Ont.

JUNIOR HERD, 1 BULL UNDER 2 YEARS OLD, 2 HEIFERS 1 YEAR OLD AND UNDER 2, AND 2 HEIFERS UNDER 1 YEAR.

1st. J. G. Robbins & Sons, Horace, Ind.
2nd. W. C. Edwards & Co., Rockland Ont.
3rd. Sir Wm. VanHorne, Selkirk, Man.

BEST 4 CALVES, BRED AND OWNED BY EXHIBITOR.

1st. J. G. Robbins & Sons, Horace, Ind.
2nd. H. Smith, Exeter, Ont.
3rd. W. C. Edwards & Co., Rockland, Ont.
4th. Hon. Jno. Dryden & Son, Brooklin, Ont.

BEST 3 ANIMALS, GET OF ONE BULL, OWNED BY EXHIBITOR.

1st. J. G. Robbins & Sons, Horace, Ind.
2nd. W. C. Edwards & Co., Rockland Ont.
3rd. Hon. Jno. Dryden & Son, Brooklin, Ont.
4th. H. Smith, Exeter, Ont.

TWO ANIMALS, PROGENY OF ONE COW, OWNED BY EXHIBITOR.

1st. J. G. Robbins & Sons, Horace, Ind.
2nd. W. C. Edwards & Co., Rockland Ont.
3rd. J. G. Robbins & Sons, Horace, Ind.

STEER, SIRED BY SHORTHORN BULL, CALVED BEFORE SEPT. 1, 1902, AND UNDER 3 YEARS

1st. Jas. Leask, Greenbank, Ont.
2nd. Jas. Rennie & Son, Blackwater, Ont.
3rd. Jas. Rennie & Son, Blackwater, Ont.

STEER, SIRED BY SHORTHORN BULL, CALVED ON OR AFTER SEPT. 1, 1902, AND UNDER 2 YEARS

1st. Jas. Rennie & Son, Blackwater, Ont.
2nd. W. R. Elliott & Sons, Guelph, Ont.
3rd. Jas. Leask, Greenbank, Ont.

STEER CALF, CALVED ON OR AFTER SEPT. 1, 1903, AND UNDER 1 YEAR, SIRED BY SHORTHORN BULL.

1st. Jas. Leask, Greenbank, Ont.
2nd. Israel Groff, Alma, Ont.
3rd. Jas. Leask, Greenbank, Ont.

CANADIAN AYRSHIRE BREEDERS' ASSOCIATION.

DIRECTORS' MEETING.

The Directors of the Canadian Ayrshire Breeders' Association convened at the Monument National, Montreal, February 10th, 1905, at 10 a.m., the President, Senator Owens, in the chair.

On motion the minutes of the last Directors' meeting were adopted.

The matter as to the advisability of granting 50 cents per member from this Association, to make each one a member of the Dominion Cattle Breeders' Association, was considered.

Mr. Alex. Hume was of the opinion that as this money granted last year was not won by Ayrshires at the Provincial Winter Fair at Guelph, it should remain intact, to be devoted towards the prize list next year. He also thought they were at liberty to have this money given in prizes at Toronto or any other show.

Mr. J. G. Clark said that instead of just the Ontario members being made members, all the members of the Canadian Ayrshire Breeders' Association should be made members of the Dominion Cattle Breeders' Association.

Mr. W. W. Ballantyne stated he had a letter before him from Mr. A. P. Westervelt, showing the benefits to be derived through being a member of the Dominion Cattle Breeders' Association. Each member was entitled, as a member of the Dominion Cattle Breeders' Association, to enter cattle at the Winter Fair, Guelph, and at the Eastern Ontario Live Stock and Poultry Show, Ottawa. This would save $1 per year, which it would otherwise cost to become a member. They were also entitled to a pass at each of the above shows, received a copy of the *Agricultural Gazette*, and had the privilege of entering stock at any of the public auction sales.

Some of the members were of the opinion the usefulness of the Cattle Breeders' Association had gone past, but after Mr. Ballantyne had read Mr. Westervelt's letter, showing the privileges obtained through being a member, the Quebec members thought they should all be made members instead of just those residing in Ontario, and on motion of T. D. McCallum, seconded by W. F. Stephen, it was resolved:

"That all the members of the Canadian Ayrshire Breeders' Association, in the different Provinces, be made members of the Dominion Cattle Breeders' Association at the rate of 50 cents per member, and that this money be left in the hands of the representatives from the Canadian Ayrshire Breeders' Association, to be given to different exhibitions."

As the money voted to Guelph Winter Fair last year was not taken up, owing to no Ayrshires competing, it was the general opinion of the meeting this money should be given towards prizes at the next show.

Alex. Hume moved, seconded by Jas. Boden, "That the Canadian Ayrshire Breeders' Association ask the Winter Fair Board to hold the $50 not donated last year over for next year's Fair." Carried.

A letter was read from the Secretary-Treasurer of the Edmonton Industrial Exhibition, asking for a grant towards their prize list in the Ayrshire department, but no definite action was taken.

Mr. Daniel Drummond read the "History of the Ayrshire Cattle," as compiled by himself and others in Mr. Hodson's department. On motion this history was approved of, with such amendments as the executive officers desire to add, and the Secretary was requested to have it appear in the next volume of the Record issued.

The matter of advanced registry was also dealt with by Mr. Drummond, and it was moved by Senator Owens, seconded by J. H. McKee, "That a copy be sent out to each of the prominent breeders, asking them to make such additions and alterations as they think necessary and forward it back to the committee for final compiling, and that the same thing be sent to a dozen of the best Scotch authorities." Carried.

The scale of points of the Ayrshire was then dealt with, and on motion of Mr. Hodson, seconded by Mr. W. W. Ballantyne, it was resolved: "That brindle and yellow be colors included in the colors that Ayrshire cows may be, or any portion of these colors." Carried.

J. Lockie Wilson suggested they make it three inches for the length of the cows' teats.

Mr. Hodson said that cows with short teats were driving more Ayrshires out of the country than anything else.

Senator Owens thought it would be better to leave the length of the teats from 2½ to 4 inches.

Moved by Senator Owens, seconded by T. D. McCallum, "That the scale of points as read be adopted by this meeting and be referred to the Executive Committee, to be dealt with in the same manner as the history." Carried.

After a vote of thanks had been tendered the committee who compiled the History of the Ayrshire, advanced registry, and scale of points, the meeting then adjourned.

ANNUAL MEETING.

The seventh annual meeting of the Canadian Ayrshire Breeders' Association was held in the Monument National, Montreal, February 10th, at 2 p.m., 1905. President Hon. Senator Owens in the chair.

The minutes of the last meeting were taken as read.

The Secretary-Treasurer presented his annual report and financial statement, and on motion they were adopted.

REPORT OF SECRETARY-TREASURER.

We have recorded 1,573 pedigrees and 592 transfers during the past year, or an increase of 22 pedigrees and 92 transfers over the preceding year, which is a slight gain.

This year 246 members have paid their fees, as against 237 last year, a slight increase.

Volume 13 was issued last year and sent to all members entitled to it. We are now taking registrations for Vol. 14, which we shall require to close in a short time in order to get ready for printing.

A Dominion Exhibition was held at Winnipeg this year, and this Association voted $100 towards the prize list. Our Quebec people exhibited largely. Herds were sent by W. Watson Ogilvie, Lachine, Que.; Robert Reford, Ste. Anne de Bellevue, Que., and R. R. Ness, Howick, Que. They were very successful. Twenty-five dollars was also awarded to Victoria, B.C., and $25 to New Westminster, B.C. Fifty dollars was also donated to the Maritime Show at Amherst, and $67.50 to the Winter Show at Guelph, through the Cattle Breeders' Association. I am very sorry to say there was not an Ayrshire animal on the ground to enter for the milk test. We have not had any report from the Amherst Exhibition as to the test of Ayrshires, and am afraid that the votes to these exhibitions, through the Cattle Breeders' Association, have not proved beneficial. In all we paid out $267.50 in prizes.

A very satisfactory display of Ayrshires was made at Toronto, Ottawa, London, Sherbrooke, Halifax, St. John's, Victoria and New Westminster.

Canadian Ayrshires were well represented at the World's Fair at St. Louis by J. G. Clark of Ottawa, and to this gentleman the thanks of this Association should be given, as he was the only exhibitor of Canadian Ayrshire cattle at St. Louis. Several of the prize winners were sold by Canadian breeders to Americans to exhibit, so Canada carried off the palm for Ayrshires.

Sales have been very good during the year from breeder to breder, and the prospects for the future to dealers in Ayrshires are bright; they are the most popular of the milk breeds.

Messrs. W. W. Ballantyne, J. C. Smith, Wm. Stewart, Jr., Hon. Senator Owens, Robert Ness, and R. Hunter were appointed delegates to the National Live Stock Association. They will, no doubt, have verbal reports to make of the necessity of establishing a national record of all breeds of cattle, horses, sheep and swine. The different horse breeders' associations held at Toronto last week all voted in favor of their records being moved to Ottawa, and no doubt this Association, after discussing the subject, will do the same, as the question of maintaining the reduction of railway shipping rates depends on the centralizing of the records. Also the amalgamation of the different Ayrshire Herd Books from Quebec, Nova Scotia and New Brunswick has been promised if this scheme is carried out in its entirety, thus leaving only one Ayrshire book for Canada.

FINANCIAL STATEMENT FOR YEAR ENDING DECEMBER 31, 1904.

RECEIPTS.

1904.		
Balance from 1903	$724 24	
246 members at $2	492 00	
2 volumes sold	4 00	
Registration fees	1,484 00	
		$2,704 24

EXPENDITURE.

Auditor and stenographer		$19 00	
Rent of hall		5 50	
Montreal Agency—			
Com. Sept. to Dec., 1903:			
180 peds. at 20c.	$36 00		
29 trans. at 5c.	1 45		
Postage and stationery	3 95		
		$41 40	
Com. Jan. to July, 1904:			
221 peds. at 20c.	$44 20		
22 trans. at 5c.	1 10		
Postage and stationery	4 86		
		50 16	
Guarantee Premiums		20 00	
Commission on 1,573 peds. at 35c.	$550 55		
Commission on 592 trans. at 10c.	59 20		
		609 75	
Postage		102 50	
Stationery and printing		80 15	
Sundries		16 41	
Prizes		200 00	
Printing and binding Vol. 13		536 22	
Membership fees, Cattle Breeders' Association, 135 members at 50c.		67 50	
Committee and delegation expenses		270 00	
Balance on hand		685 65	
			2,704 24

ASSETS, DEC. 31ST, 1904.

Cash on hand		$685 65
483 volumes Dominion Herd Book at $1		483 00
116 volumes Canadian Herd Book at $1		116 00
132 volumes Vol. 9 at $2		264 00
169 volumes Vol. 10 at $2		338 00
320 volumes Vol. 11 at $2		640 00
355 volumes Vol. 12 at $2		710 00
407 volumes Vol. 13 at $2		814 00
Montreal Agency—		
Balance of reg. fees to come, less charges to Dec. 31, 1904		172 10
Total		$4,222 75

The accompanying statements are correct and in accordance with the books of the Ayrshire Breeders' Asociation.

HENRY WADE, Secretary-Treasurer. CHAS. F. COMPLIN, Auditor.
Toronto, Ont., January 16, 1905.

The President then called upon Mr. F. W. Hodson, Dominion Live Stock Commissioner, to address the meeting on the subject of nationalizing the Association and records. In the course of his remarks Mr. Hodson showed the breeders that if they did not make the records national in character each Province would establish a record of its own, and this would be detrimental to the live stock interests of the country. As there were several records in each Province each issuing a different certificate, it made it impossible for the railroads to determine which were reliable, and a great many forms had been used in shipping animals instead of proper certificates. On this account the railway authorities threatened to cancel the half rates on pure-bred stock, and at a recent meeting of the Canadian Freight Association passed a ruling "That all record certificates accepted by the railroads must be of uniform size and appearance and bear the seal of some central body, recognized as reliable by the Dominion Department of Agriculture."

Mr. Hodson also pointed out to the breeders that the nationalization of Canadian records would reduce the expenses of the breeders very materially. They would save in postage and express alone $1,500 per year. In clerical work at least $2,000 could be saved, making a total saving by nationalization of $3,000 per year, which in ten years would amount to $30,000 saved to the farmers and breeders of Canada. He said national records would establish and extend interprovincial trade, and, in fact, without national records and a national association the interprovincial trade that now exists would decrease rather than increase.

Mr. R. R. Ness and Mr. J. G. Clark spoke briefly regarding the great benefits to be derived if they nationalized their Association and records, and on motion of R. R. Ness, seconded by J. G. Clark, it was resolved:

"That the Canadian Ayrshire Breeders' Association at once proceed to nationalize their Association and records. That the office be transferred from Toronto to Ottawa. That J. W. Nimmo be Registrar. That Robert Ness, Sr., Howick, Que., J. G. Clark, Ottawa, and Senator Owens, Montreal, Que., be a committee to meet the Live Stock Commissioner and complete arrangements forthwith." Carried.

The matter of the secretaries of the Canadian Ayrshire Breeders' Association was then dealt with, and J. C. Smith moved, seconded by J. Lockie Wilson, "That the same secretaries be re-apointed until nationalization is completed." Carried.

JUDGES RECOMMENDED.

Jas. Bryson moved, seconded by Wm. Stewart, that the two-judge system be in force at Toronto Industrial. Carried.

Toronto Industrial—D. Drummond and W. F. Stephen; reserve, Jas. Boden.

Ottawa Central Exhibition—John McKee, Norwich; reserve, Jas. Boden.

London Western—Jas. Boden; reserve, Geo. McCormack.

Sherbrooke—Jas. Bryson; reserve, Jas. Boden.

Three Rivers and Quebec—Thos. Irving, Jr., North Georgetown, Que.

St. John's Exhibition, Que.—W. F. Stephen.

Winnipeg—A. Kains, Buron.

New Westminster—W. W. Ballantyne; reserve, T. D. McCallum.

RESOLUTIONS.

Moved by J. G. Clark, seconded by W. F. Stephen, "That the motion regarding the granting of 50 cents per member to the Dominion Cattle Breeders' Association, as drawn up at the Directors' meeting, be approved by the annual meeting." Carried.

Lockie Wilson moved, seconded by T. D. McCallum, "That the matter of granting other sums of money as prizes be left in the hands of the Directors." Carried.

On motion of T. D. McCallum, seconded by Alex. Clark, it was resolved, "That the guarantee of the Secretaries, which has been in force, be continued." Carried.

Moved by Jas. Bryson, seconded by J. G. Clark, "That the Secretary be requested to forward a letter of condolence to Mrs. David Benning, whose husband was a life member of the Canadian Ayrshire Breeders' Association and one of the most prominent Ayrshire breeders." Carried.

The History of the Ayrshire Cattle, as compiled by Mr. Drummond, was read and adopted.

Mr. Daniel Drummond also read the Scale of Points as compiled by himself and others in the Live Stock Commissioner's department, and a short discussion took place as to the color of Ayrshires.

Mr. Hodson said the best cows in Scotland to-day have a portion of their bodies black.

Mr. Jas. Boden: The Americans will accept black and white, but they have objections to brindle.

Jas. Bryson: I am a fancier of a lighter color. I would not want a black Ayrshire.

Robert Hunter: I would not put in black, but would allow black and white, but would not put in brindle.

Moved by T. D. McCallum, seconded by Thos. Irving, "That the colors black and brindle be struck off the Scale of Points for Ayrshire cows and bulls." Carried.

The "Advanced Registry," as prepared in the Live Stock Commissioner's office, was submitted to the meeting.

Mr. Hume suggested that the clause, "Every cow accepted for entry must drop a calf within fourteen months after the comencement of test," be changed to read "fifteen months."

W. F. Stephen and others agreed with Mr. Hume's suggestion.

On motion it was resolved, "That the President (Alex. Hume), Vice-President (Robert Hunter), J. G. Clark, R. R. Ness, W. W. Ballantyne, W. F. Stephen, F. W. Hodson, be a committee to carry out the work of the advanced registry."

SCALE OF POINTS FOR AYRSHIRES.

Cows.

1. General Appearance—A symmetrical balancing of all the parts and a proportion of parts to each other, depending upon the size of the animal. A generally high class appearance, with a capacity for food and productiveness at the pail. The skin of medium thickness, mellow and elastic, secretions yellow, hair soft and fine; bone fine and clean; style active and vigorous; color red of any shade, brown, black or white, or a mixture of these, each color being distinctly defined; (brindle allowed, but not desirable); weight at maturity not less than 1,000 lbs. 14

2. Head—Clean cut, lean, showing facial veins; forehead wide; eyes lively and full, causing a hollow in face; muzzle wide with open nostrils; horns set wide on and inclining upwards; jaws, strong and sinewy; ears, fine in texture and of medium size 6

3. Neck—Long and flat on sides, fine at junction with the head and enlarging symmetrically towards the shoulders; throat clean and free from loose skin 4

4. Fore Quarters—Shoulders sloping; withers, fine, clean and sharp; vertebræ somewhat higher than the blades; chest deep and full between and back of forelegs to insure constitution; no depression behind shoulder blades; brisket light 6

5. Body—Back strong; chine lean, sharp, and open jointed; loin broad; ribs long, broad and wide apart, giving large barrel capacity; body gradually increasing in depth and width backward 20

6. Hind Quarters—Long, broad and straight, except at pelvi-arch; hooks wide apart but not overlaid with fat; rump long and level

from hip bones to rump bones; tail, long, slender and set on a level with back; flank thin and arching 10

7. Udder—Capacious, not fleshy, covering a larger portion of and attached firmly to the body (not pendulous); sole nearly level and not deeply cut between the teats; udder veins well developed and prominent 10

7a. Fore Udder—Full in form, broad, and on a level with abdomen, leaving no hollow between, firmly attached to body and extending well forward from teats 8

7b. Hind Udder—Full in form, extending well up behind, wide connection with body 6

7c. Teats—From 2½ to 4 inches in length, equal in thickness, thickness being in proportion to the length, hanging perpendicularly; their distance apart at the side; should be equal to one-third the length of the udder, and across to one-half the breadth 8

8. Milk Veins—Long, crooked, branching and prominent, with large and numerous wells 4

9. Escutcheon—Spreading over thighs and extending far upwards 2

10. Legs—Short in proportion to size of animal; hind legs straight when viewed from behind, and not cross in walking; thighs thin, giving plenty of room for the udder; shank fine and smooth 2

Total 100

Bulls.

1. General Appearance—Decidedly masculine in character, with a harmonious blending of the parts to each other; thoroughly robust; active, with strong, resolute bearing; abundant nervous energy; skin of medium thickness, mellow and elastic; secretions yellow; hair soft and fine; bone fine and clean; color red of any shade, brown, black or white, or a mixture of these, each color being distinctly defined. Weight at maturity not less than 1,500 lbs. 15

2. Head—Clean cut, medium length, frontal bone broad; horn strong at base, inclining upwards; face slightly dished; muzzle broad, nostrils open; jaw strong; eyes full and bold; the entire expression full of vigor, resolution and masculinity 15

3. Neck—Long, somewhat arched, large and strong in the muscles on top, inclined to flatness on sides, enlarging symmetrically towards the shoulders, throat clean and free from loose skin 10

4. Fore Quarters—Shoulders close to the body, without any hollow space behind; chest broad, brisket deep and well developed, but not too large; vertebræ rising above shoulder blades 10

5. Body—Back strong; chine lean and open jointed; loin broad; ribs long, broad, wide apart, giving large barrel capacity; body gradually increasing in depth and width backward 20

6. Hind Quarters—Long, broad and straight, rump long and level from hip bones to rump bones; hips rounded and of medium width compared with the female; thighs flat, well cut out in twist, flank thin and arching; tail long and set on a level with back 12

7. Scrotum—Large, with well-developed rudimentary teats squarely placed in front and of uniform size; milk veins prominent 10

8. Legs—Short in proportion to size of body and of good quality; joints firm; hind legs well apart and not to cross in walking..... 6

9. Escutcheon—Large and well developed 2

Total 100

CANADIAN RECORD OF MERIT FOR DAIRY COWS.

In order to encourage the breeding of pure-bred cattle of greater individual excellence in the production of dairy products, the Live Stock Branch of the Department of Agriculture has arranged to conduct a Canadian Record of Merit for Dairy Cows, based upon carefully authenticated official home tests.

Scope of the Tests.

All tests will be for a period of 365 consecutive days. Registration will be individual and both bulls and cows may be entered.

Eligibility of Animals.

All animals admitted to the Record of Merit must previously be entered in the Canadian Herd Book for the breed to which they belong. Animals will be admitted to the Record of Merit under the following conditions:

Bulls—Admitted after having four daughters in the Record, each from a different dam.

Cows—Admitted for milk and butter fat records.

Classification of Animals.

Cows from 2 to 3 years old shall be in a class known as 2-year-old form.
Cows from 3 to 4 years old shall be in a class known as 3-year-old form.
Cows from 4 to 5 years old shall be in a class known as 4-year-old form.
Cows above 5 years shall be in a class known as full age form.
All cows admitted must equal or exceed both the records specified below:

Year's Milk Record.

If record be commenced the day the animal is two years old, or previous to that day, she must produce within 365 consecutive days from that date, 5,500 lbs. of milk. For each day the animal is over two years old at the beginning of her year's record, the amount of milk she will be required to produce in the year will be established by adding 2.75 lbs. for every such day to the 5,500 lbs. required when two years old. This ratio is applicable until the animal is five years old, when the required amount will have reached 8,500 lbs., which will be the amount of milk required of all cows five years old or over.

Year's Butter Fat Record.

If record be commenced the day the animal is two years old, or previous to that day, she must produce within 365 consecutive days from that date, 198 lbs. of butter fat. For each day the animal is over two years old at the beginning of her year's record, the amount of butter fat she will be required to produce in one year will be established by adding .1 (one-tenth) of a pound for each such day to the 198 lbs. required when two years old. This ratio is applicable until the animal is five years old, when the required amount will have reached 306 lbs., which will be the amount of butter fat required of all cows five years old and over.

The minimum amounts of milk and butter fat for the various ages are, therefore, as follows:

	Milk.	Butter Fat.	Lbs. Butter.
Two-year-old form	5,500	198	231
Three-year-old form	6,500	234	273
Four-year-old form	7,500	270	315
Full-age form	8,500	306	357

Every cow accepted for entry must drop a calf within fourteen months after the commencement of tests. In the four-year-old form and full-age form, no cow will be accepted for entry if the beginning of her previous lactation period was more than fourteen months before the commencement of test.

The per cent. of butter fat shall be determined by the Babcock test. For the purpose of estimating the amount of butter from the amounts of butter fat produced, the Department recognizes the rule approved by the Association of Agricultural Colleges and Experimental Stations, namely, "add one-sixth to the amount of butter fat."

Commencement of Tests.

Tests may commence at any time, but applications should be made to the Department at least one month previous to the date on which it is desired to have the tests begin, in order to allow sufficient time to make the necessary arrangements.

Method of Conducting Tests.

The owner of a cow entered in the test shall weigh each milking and keep a careful record of the same on blank forms furnished by the Department, and about the middle of each month he shall take a composite sample from all the milkings of three consecutive days according to directions, and send same to the Department to be tested for butter fat. In addition, the Department will send an inspector to the stable at irregular intervals and unannounced, and not less than three times during the year, and said inspector shall take a copy of the owner's milk record of the cow or cows under test for the two days immediately preceding his visit, and shall weigh the milk for the two days of his visit and take samples of each milking for a Babcock test, which tests shall be the basis for computing the year's record.

At the end of each month the owner shall report to the Department on blank forms furnished for the purpose:

(a) A complete record of the weights of each milking, with the total yield of milk for each cow for the month.
(b) An approximate statement of the amount and kinds of feed given the animals, and as to the matter of stabling and caring for same, including the dates of service.
(c) At the end of the year the owner shall send to the Department on blank forms furnished for the purpose, a compiled report of the year's milk record taken from the monthly reports and sworn to before a notary public or justice of the peace.

Duties of Inspectors.

Inspectors should see that the weights of all milk pails are correct, that the scales are properly balanced, and personally weigh and record the weights of the milkings from which samples are taken by them. They may insist upon only one of the animals under test being milked at a time during inspection. The inspectors shall see that all samples taken by them are in no manner disturbed before testing. When not under the inspector's eye, they must be under lock and key.

The percentage of fat given should represent the milkings of an entire day. If the milkings are tested separately an average per cent. of fat must be given, subject to the approval of the Department.

Special attention should be given to the dates of calving, service, in heat and not served, etc. Also as complete a statement as possible of the feed given should be reported. Any sickness of cows, or other disturbing influence, should be noted by the inspector.

Certificate of Entry.

The Department will issue certificates of entry for each animal admitted to the Record of Merit.

Directions for Taking Samples of Milk.

As soon as the milk has been weighed it should be thoroughly mixed by pouring it three or four times from one pail to another. A sample comprising as many cubic centimetres of milk, as the number of pounds in the milking should be placed in a pint fruit jar containing a small quantity of preservatives. Bichromate of potash is preferable, and the quantity should be just sufficient to color the milk a bright lemon yellow. When samples have been taken of all the milkings for two days, the jar should be sent to the Department. A 25 c.c. glass pipette for taking samples will be furnished for each herd.

A SHORT HISTORY OF THE AYRSHIRE BREED.

By Daniel Drummond, Ottawa.

Little definite is known as to the exact origin of the Ayrshire. It is claimed by some, and the contention seems reasonable, that the breed originated in the wild white district. The well-known tendency of the breed to revert to white or other light colors, seems to support this theory. There is evidence, however, to show that the Ayrshire of to-day is a composite breed, and has developed by a judicious system of crossing.

It is said that the Earl of Marchmont introduced some cattle of the Teeswater or Holderness bred some time between 1724 and 1740. It is known, too, that about 1760 John Dunlop introduced some cattle, spoken of as Dutch cows, but from their brown and white colors believed to be Teeswater cattle. This "Dunlop" strain of cattle were much larger than the common cattle of the country, and when given the proper care proved to be very superior dairy cows; therefore, they and their crosses soon became very popular and numerous.

It is claimed, too, that Jersey and Guernsey blood was used in building up the breed, and this contention seems to be reasonable. It is known to have been a common practice for many years to keep a few cows of these breeds in British dairy herds to improve the color of the product, and one can easily understand how the progeny of these cows would gradually become absorbed in the breed, especially when we remember that the Ayrshire Herd Book was not established in Scotland until 1878. It is believed, too, that the West Highlander has contributed his quota to the evolution of the modern Ayrshire, although this theory is not by any means universally accepted. The principal evidences of West Highland blood are found in the spreading upright horn, the shape of the head and face, the comparatively heavy coat of hair for a dairy breed, and the stylish carriage.

Although they can lay no claim to being specially adapted to beef production, the calves are thrifty and full fleshed, and steers and dry cows fatten readily on suitable feeding. Their carcases are small, but they always give an unexpectedly large percentage of dressed meat, and the quality is excellent, fine grained and well marbled.

Owing to the conditions under which they have been reared, the Ayrshire is a hardy, vigorous breed, quick and active, and perhaps the best of all

dairy breeds to withstand adverse conditions. They are essentially a grazing breed, and give the best results when on pasture alone. The prevailing colors are red and white, brown and white, black and white, with white largely predominating, some brindle, and some dark brown shading off into black. One of the most noted show cows of the breed was a black known as "Drew's wee black coo." and one of the most noted herds in Scotland to-day, that of Mr. McAllister, of Bute, is headed by a black bull, a descendant of this cow. Like most of the other breeds, the Ayrshire has suffered from the tendency of its breeders to run to fads. In this case the fancy was for a flat, solid udder, with which is nearly always associated a very short teat. This "tight vessel" covering a large surface in its attachment to the body, is in itself a desirable conformation: but in their anxiety to obtain it, many breeders overlooked the short teats which were very apt to be associated with that form of udder, and which afterwards came to be regarded as a serious objection. It cannot be denied that this popular fancy did much to impair the usefulness for dairy purposes of many of the best show herds. However, breeders have seen the mistake into which this fad was leading them, and are now doing all they can to correct this defect in their herds.

The first Ayrshires in America were brought to New York in 1822. They were imported into New England in 1830 and into Canada in 1837. The breed has been a special favorite for dairy purposes in Canada, the New England States, and part of New York State, but does not seem to be as well known elsewhere as its established good qualities deserve. The end sought in perfecting the breed has been a large yield of milk with the utmost economy in the utilization of food.

The Ayrshire cow is of medium size, weighing on an average about 1,000 pounds, and has a decided appearance of an excellent dairy cow. She is a great eater, and is not in the least fastidious about her food. She is very active, a fast walker, and when at liberty most constantly in motion. She is quiet in disposition, bright and intelligent, and, despite her activity, is neither fidgety nor nervous when being milked.

She is a persistent milker, giving a large flow nearly the whole year. The average cow should give about 3,000 quarts of milk, but there are many individual records of from 4,000 to 6,000 quarts in a year. The milk is of a good color, looks rich, never blue, nor lean, and on account of its equal distribution of cream and casein, is easily digested and excellent for children and people with weak digestions. While the Ayrshire cannot compete with the Channel Island cattle in butter production, her milk is admirably suited for town and city supply, testing well above local requirements, uniform and capable of rough handling and long journeys without injury.

A yield of 5,500 pounds a year as an average for a well cared for herd is often secured.

Records of 18 well managed herds, collected from different sections and averaging 12 cows each, show an annual average product of 5,412 pounds.

One noted herd, averaging 14 cows in milk, has an unbroken record for nineteen years, with an average product of 6,407 pounds a year per cow.

To illustrate how economically both milk and butter can be produced by this breed, the following interesting facts are presented: In a Vermont herd, where a detailed record has been kept for eight consecutive years, the milk average over 4 per cent. butter fat and from 306 to 319 pounds of butter per cow, single cows making over 400 pounds. The rations which produced these results were: In summer, pasturage alone: in winter, to each cow, daily, one bushel of ensilage of matured field corn, an average of two quarts each of corn meal and wheat bran, and plenty of good hay.

Ayrshires have not been boomed by their champions to the same extent as some of the other dairy breeds; they have been bred principally by small farmers and kept purely for commercial dairy purposes, hence they have not the phenomenal records made by cows forced to the limit of their capacity. They have, however, some very creditable records made by whole herds kept in the ordinary business way on dairy farms. From among those we have selected the following:

Herd of Charles H. Hayes, Portsmouth, N.H., 1897.

30 cows and heifers averaged in milk	6,570	lbs.
Best ten	8,097	"
Best cow gave	10,920	"

Herd of C. M. Winslow, Brandon, Vermont, 1896.

16 cows gave an average	7,289	lbs.
The average yearly production per cow of this herd for 23 years was	6,452	"

Herd of L. S. Drew, Burlington, Vermont, 1901.

29 cows gave in 365 days (as shown by Babcock test), 253,495 lbs. milk, an average of	8,741	"
11,823 " butter, "	407	"

10 best cows averaged 10,384 lbs. milk and 480 lbs. butter.

Herd of Geo. H. Yeaton, Rollingsford, N.H.

20 cows, an average yield of 7,392 lbs. of milk.

The best cow in Mr. Yeaton's herd at any time was Lady Fox, who had to her credit a year's record of 12,299 lbs. of milk, capable of making 624 lbs. of butter as determined by Babcock test.

Herd of J. G. Clark, Ottawa, Ont., 1903.

20 cows and heifers averaged	8,382	lbs. milk.
The average butter production of the herd, determined by Babcock test	374	"
The highest milk yield was 11,262 lbs., testing 3.5 per cent. fat.		
The highest butter yield was	470	"

Compared With Other Breeds.

At the N. H. Experiment Station, with four cows of each breed, the average results for a full year's test were as follows:

	Ayrshire.	Jersey.	Holstein.
Pounds of milk	5,845	4,847	5,971
Pounds of butter	267	269½	207
Per cent. of butter fat	4.28	5.12	3.13
Cost of keeping	44.48	46.49	50.12
Pounds of milk to pounds of butter	21¼	18	29

At the Vermont Experiment Station in 1895, Rena Myrtle 9530 A.H.B., as a farrow cow, used for experimenting with different kinds of food, gave the largest milk and butter record ever obtained at the Station from any cow of any breed, in one year:—12,175 pounds of milk, 346 pounds of butter.

At the Connecticut Dairyman's Exhibition in January, 1896, the prize offered for the best butter from any breed by registered cows was won by an Ayrshire.

OFFICERS FOR 1905.

Honorary President ..... F. W. Hodson, Ottawa, Ont.
President ..... Alex. Hume, Menie, Ont.
1st Vice-President ..... Robert Hunter, Maxville, Ont.

VICE-PRESIDENTS.

Ontario ..... Alex. Clark, Brinston's Corners.
Quebec ..... Robert Ness, Howick, Que.
Manitoba ..... Geo. Steele, Glenboro, Man.
Assiniboia ..... J. C. Pope, Regina, Assa.
British Columbia ..... A. C. Wells, Sardis, B.C.
Prince Edward Island ..... Jas. Easton, Charlottetown, P.E.I.
Nova Scotia ..... C. A. Archibald, Truro, N.B.
New Brunswick ..... H. M. Parlee, Sussex, N.B.

LIFE MEMBERS.

Hon. Thos. Ballantyne, Stratford.
Jas. McCormack, Rockton.
David Morton, Hamilton.
Thos. Irving, North Georgetown, Que.
Jos. Yuill, Carleton Place.
John Morrin, Belle Riviere, Que.
John Crosby, Campbellford.

DIRECTORS:

Ontario—
J. G. Clark, Ottawa.
W. W. Ballantyne, Stratford.
A. Kains, Byron.
John McKee, Norwich.
Wm. Stewart, Jr., Menie.
A. Hume, Menie.
J. C. Smith, Hintonburg.

Quebec—
P. A. Gouin, Three Rivers, Que.
Robt. Hunter, Maxville, Ont.
Senator Owens, Montreal, Que.
R. R. Ness, Jr., Howick, Que.
W. F. Stephen, Trout River, Que.
T. D. McCallum, Danville, Que.
Napoleon Lachapelle, St. Paul l' Ermite, Que.

Registrar: J. W. Nimmo, Ottawa, Ont.
Secretary-Treasurer: Henry Wade, Parliament Buildings, Toronto, Ont.
Eastern Secretary: J. P. L. Berube, Montreal, Que.
Executive Committee: (Eastern Division), R. Hunter, Senator Owens, Nap. Lachapelle. (Western Division), Wm. Stewart, Jr., W. W. Ballantyne, and J. C. Smith.
Revising Committee: F. W. Hodson, Senator Owens, J. C. Smith, Robert Ness, and H. Wade.
Auditors: (Ontario), C. F. Complin, London; (Quebec), Senator Owens, Montreal, Que.
Delegates to Industrial Exhibition: W. W. Ballantyne and Wm. Stewart, Jr.
Delegates to Western Fair: A. Kains and D. Hill, Delaware.
Delegates to Ottawa Winter Fair: Thos. Fairbairn, Billing's Bridge; and Caleb Harding, Bowesville.
Delegates to Canada Central, Ottawa: Alex. Clark, Brinston's Corners; and Robert Hunter, Jr., Maxville.
Delegates to Sherbrooke: Jas. Bryson, Brysonville; and R. R. Ness, Jr.
Delegates to Quebec and Three Rivers: Nap. Lachapelle and P. A. Gouin.
Delegates to Dominion Cattle Breeders' Association: W. W. Ballantyne and H. Wade.

DIRECTORS' MEETING.

At the conclusion of the annual meeting the Directors convened, and appointed a President, Vice-President, and various committees, which appear in the list of officers.

Moved by Robert Ness, seconded by F. W. Hodson, "That the prizes offered at Amherst, Guelph, and Ottawa last year be continued this year, in addition to the previous money voted through the 50 cents." Carried.

"That the sum of $75 be donated to each of the following places: Amherst (N.S.), Ottawa, and Guelph Winter Fairs; $50 to be given as a sweepstake for cow and $25 as a sweepstake for heifer, providing the highest scoring be made by pure-bred Ayrshires in the dairy test. All Ayrshires competing to be registered in the Canadian Ayrshire Herd Book." Carried.

In speaking of the advanced registry, Mr. Hodson said they proposed to get as good a clerk as possible to put in charge of this work.

Mr. WADE: Do you intend to charge fees?

Mr. HODSON: I think we should start in in a liberal way so as not to make this work a burden to the breeders, and for this reason I would ask that you vote a sum of money to help carry on the work.

Moved by J. C. Smith, seconded by Robert Ness, "That the committee appointed to look after the work of advanced registry be authorized to draw on the treasury for a sum not to exceed $250." Carried.

Moved by W. W. Ballantyne, seconded by Robert Hunter, "That the Directors convene at 8 o'clock the evening before the next annual meeting held in Toronto, and that the annual meeting commence at 10 a.m. sharp." Carried.

The meeting then adjourned.

AYRSHIRE MEMBERS, 1905.

Name.	Address.
Agricultural School	L'Assomption, Que.
Agricultural School	St. Annes de Porataire, Que.
Alexander, Joseph	Mascouche Rapids, Que.
Aikenhead, John	Hartney, Man.
Anderson, Robt.	North Georgetown, Que.
Archibald, C. A.	Truro, N. S.
Armstrong, Jas.	Shawville, Que.
Aylwin, Chas. S.	Freeman.
Ballantyne, W. W.	Stratford.
Baxter, D.	North Georgetown, Que.
Begg, O. V.	Moose Creek.
Bell & Sons, J. H.	Farnham Centre, Que.
Bell, M.D., Jas.	Dorchester St., Montreal.
Black, Fred S.	Amherst, N.S.
Blue, John	Capelton, Que.
Bigelow, Samuel	Canning, N.S.
Bogart, J. W.	Moorewood.
Bonne-enfant, Joseph	St. Paul l'Ermite, Q.
Brown, Alf.	Hemmingford, Que.
Bryson, Jas.	Brysonville, Que.
Bullock, W. J.	Lakefield.
Belanger, Maxim	St. Eustache, Que.
Cavers, Jas. P.	Ormistown, Que.
Cumberland, Barlow	Port Hope.
Callender, Jas.	North Gower.
Campbell, A.	Howick, Que.
Campbell, John R.	Vernon.
Central Ex. Farm	Ottawa.
Champion, W. M.	Reaburn, Man.
Clark, Jas.	Campbellford.
Clarke, J. G.	Ottawa.
Clarke, Alex.	Brinston's Corners.
Cleland, Archie	Hemmingford.
Cleugh, Wm.	Campbellford.
Cottingham, Jas.	Ormistown, Que.
Crockett, T.	Danville, Que.
Craighton, J. C.	Hawley.
Cumming, D.	Russell.
Cumming, A. T.	Heckstone.
Cumming, Donald	Lancaster.
Countu, Edward	S e. Elisabeth, Que.
Clark, Wm.	Meversburg.
Cain, Fred L.	23 St. Helen St., Montreal.
Campbell, John	Dalmeny.
Davies, Robert	35 Toronto St., Toronto.
Davidson, E. G.	Ayers Flat, Que.
Dawes & Co.	Lachine, Que.
Deyers, H. K.	Foxbow.
Denis, Arsene	St. Norbert, Que.
Deschamp, Louis	St. Paul l'Ermite, Q.

Name.	Address.
Dingwell, Jas.	Williamstown.
Douglas, John H.	Warkworth.
Drummond, A., M.D.	Petite Cote, Que.
Drysdale, Thos.	Allen Corners.
Dundon, John	Hedly Lodge, St. Rochs, Que.
Dunfield Bros.	Dauphin, Man.
Deschamps, Philias	St. Paul l'Ermite, Que
Easton Bros.	Charlottetown, P.E.I.
Edwards & Co., W. C.	Rockland.
Empsey, Adam	Springfield.
Farlinger, W. K.	Morrisburg.
Fisher, Hon. Sydney	Knowlton, Que.
Fox, M. C.	Cobourg.
Fulton, Geo.	Fulton Mills.
Fisher, Geo. E.	Chatham, N.B.
Fyles, F. F.	Abercorn.
Gaw, Jas.	Sheffordvale, Que.
Gibbons, W. T.	Northcote.
Girsward, Eli	St. Victoire, Que.
Goodliffe, Syd. T.	Sussex, N.B.
Gordon, Hector	Howick, Que.
Greenshields, J. N.	Danville, Que.
Greenway, Hon. Thos.	Crystal City, Man.
Greig, Wm.	Allan's Corners, Que.
Gouin, P. A.	Trois Riviere, Que.
Girsward, Joseph	St. Ours, Que.
Girsward, Adolphe	St. Barnate, Que.
Hamilton, John	Grand Ferrier, Que.
Hardy, Wellington	Rolland, Man.
Hardy, H.	Bowesville.
Hardy, C.	Bowesville.
Hay, Wm.	Howick, Que.
Hearn, Michael	Burke, N.Y., U.S.
Hendy, Chas.	Campbellford.
Hill, Geo.	Delaware.
Hodson, F. W.	Ottawa.
Howden, John	St. Louis de Gonzague, Que.
Hume & Co., A.	Menie.
Hunt, John	Russell.
Hunter & Son, Robt.	Maxville.
Hunter, Mrs. W. H.	Renton, Man.
Hunter, Robert	Maxville.
Hunter, Wm.	Maxville.
Hudson, John	Morton.
Harkness & Sons	Irena.
Hudson, Arch.	Soperton.
Hyacinthe, Niousseau	Berthier, Que.
Imerson, C. J.	Lyn.
Innes, P.	Cold Brook Stat'n, N.S.
Irving, Archie	Scotston, Que.
Irving, Thos.	North Georgetown, Que.

AYRSHIRE MEMBERS, 1903. *Continued.*

Jackson, W. R.	1318 Niagara St., Buffalo, N.Y.
James, J. A.	Milverton.
Jeffries, W. A.	Sussex, N.B.
Jones, C. A.	Bedford, Que.
Kains, Arch.	Byron.
Kay, W. F.	Philipsburg, Que.
Kennedy & Sons, Arch.	Vernon.
Kinsey, Jos.	Doon.
Knight, Jos.	Elginburg.
Kansas State Ag. Coll.	Manhattan, Kas.
Lachapelle, Edward	St. Paul l'Ermite, Que
Lachapelle, Nap.	St. Paul l'Ermite, Que
Lamarche, Horace	St. Esprit, Que.
Langelier, Gus A.	14 De Salaberry St., Quebec City.
Lavalle, Paul	Berthier, Que.
Legris, N.	St. Leon Maskinonge, Q.
Leitch, David	Cornwall.
Locke, John	Campbellford.
Logan, J. W.	Allen's Corners.
Lussier, Alphonse	St. Charles, Richelieu,
Liddycoat, N. D.	Clappison's. [Que.
Mackie, Wm.	Agassiz, B.C.
Massey, Est. W. H.	Coleman.
Massicottee, Clair	St. Proeler, Que.
Massean, F.	Nicolet, Que.
Mellick, Aaron	Smithville.
Miller, Wm.	Marshfield, P.E.I.
Model Farm	Compton, Que.
Morden, A. A.	Wellington.
Monssieu, A.	Berthier, Que.
Morrison, John R.	Burnbrae.
Montgomery, G. H.	Philipsburg, Que.
Muir, G. H.	Bougie, Que.
Muir, S. Archie	Huntingdon, Que.
Murphy, R. G.	Elgin.
Mackeracker, D. G.	Howick, Que.
Mills, Thos. J.	Maria, Que.
Marien, D. A.	447 Sherbrooke St., Montreal.
McCallum, T. D.	Danville, Que.
McCartney, Thos.	Longburn, Man.
McDonald, Sir Wm.	St. Anne's de Bellevue,
McDonald, John	New Glasgow, N.S.
McDowell, D. H.	Compton, Que.
McFarlane, D. A. & S. A.	Kelso, Que.
McFarlane, Robert	Riverfield, Que.
McKee, H. & J.	Norwich.
McLachlan Bros.	Arnprior.
McLeod, W. D.	Kirkhill.
McIntosh, Peter	Can Bridge.
McMaster, J. A.	147 Clandesbury Ave., Montreal; Summerstown, Que.
McMillan, D. E.	Laggan.
McIntyre Bros.	Sussex Corners, N.B.
McQuat, Jas. W. A.	Brownberg, Que.
McViety, M. H.	Ottawa.
McGinnis, T. C.	Iberville, Que.
Neely, Robt.	Dorchester Station.
Ness, Robert	Howick, Que.
Ness, R. R.	Howick, Que.
Ogilvie, W. Watson	Lachine Rapids, Que.
Ontario Agr. College	Guelph.
Owens, Hon. Wm.	4026 Dorchester St., Montreal.
Ouimet, Wilfrid	Ste. Rose, Que.
Ouimet, Clovis	St. Francois de Sales, Q.
Ouimet, Adolphe	St. Francois de Sales, Q.
Ouimet, E.	Ste. Rose (Laval), Que.
Parker, W. D.	Hately, Que.
Paton, Hugh	Montreal, Que.
Patenude, P.	St. Remi, Que.
Peter, J. M.	West Brome, Que.
Phanent, Antoine	St. Antoine Vercheres,
Pope, J. C.	Regina, Assa. [Que.
Provincial Stock Farm	Charlottetown, P.E.I.
Proulse, Leopold	St. Ours, Que.
Pursell, Daniel	Huntingdon, Que.
Perrier, Octave	Laprairie, Que.
Reford, Robt.	St. Anne's de Bellevue,
Reid & Co., J. C. Smith	Hintonburg. [Que.
Riel, J. B.	St. Remi, Que.
Rivet, Chas.	Joliet, Que.
Robertson, R.	North Georgetown, Que.
Roberts, Jos.	Russelton Flats, Que.
Rannie, Wm.	Menie.
Rannie, C.	Menie.
Robinson, Tyson	Como, Que.
Ramage, Thos.	Petite Cote, Que.
Safford, W. R.	Danville, Que.
Sandilands, John	Williamstown.
Scott, John W.	Austin, Minn., U.S.
Seminary of Queta	Quebec City.
Simpson, Jas.	South Augusta.
Sims, John	Melbourne Ridge.
Smith, Wm.	Scotland.
Steacy, R. G.	Lyn or Brockville.
Steel Bros.	Blenbow, Man.
Stephen, W. F.	Trout River, Que.
Stewart & Son, Wm.	Menie.
Stewart, Jas. A.	Menie.
Smith, R. W.	Clanhavil.
Senecal, L. C.	S. Mari, Que.
Stirreff, Wm. & G. G.	Clarence.
Snetsinger, J. Wilson	Newington.
Smith, Mrs. A. W, & Wilson, John	Simcoe.
Scofield, David L.	Blackville.
Taylor, F. W.	Wellsman's Corners.
Thibdeau, D.	North Watson Mills.
Thompson, S. J. & Sons	St. James, Man.
Tipping, J. A.	Clarenceville.
Trann, W. H.	Cedar Grove.
Trappiste Fathers	La Trappeoka, Que.
Trudel, T.	St Prosper, Que.
Turemie, Delphis	St. Paul l'Ermite, Q.
Treverton, Thos. C.	Bellville.
Taylor, W. F.	Westboro.
Watt, John	Allan's Corners.
Wells & Son, A. C.	Chilliwack, B.C.
Whittaker & Sons, H. T.	North Williamsburg.
Willoughby, Mrs. H. G.	Saskatoon, Sask.
Wilson, J. Lockie	Alexandria.
Wood, Andrew	Vankleek Hill.
Wood, J. Walter	Short Hills, N.W.T.
Wooddisee Bros.	Rothsay.
Wooley, Jos. Hy.	Box 303, Simcoe.
Woodbury, Thos. J.	Manchester.
Walker, Thos., Jr.	Wellman's Corners.
White, Wm.	Bloomfield.
Watson, Thos.	Howick, Que., or North Georgetown.
Yates, Mahlin	Athens.
Young, R.	Rowersville.

PRIZE-WINNING AYRSHIRES AT THE CANADIAN NATIONAL EXHIBITION, TORONTO, 1904.

BULL, 3 YEARS OLD AND UPWARDS.

1st. Howie's Fizzaway (imp.)—16721— white with dark spots on head and neck; calved April, 1901; bred by Jos. Howie, Hillhouse, Scot.; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Prince Imperial of Netherhall (3830); dam Blossom 3rd of Netherhall (10200).

2nd. Lessnessock King of Beauty (imp.) —16768— white; calved March, 1901; bred by T. W. & R. A. Lindsay, Carsegowan, Wigtown, Scot.; exhibited by Robt. Hunter & Sons, Maxville; sire Mischief Still of Borrowmon (4332); dam Queen of Beauty of Carsegowan.

3rd. Hover-a-Blink —9806— white, with red markings; calved Aug. 5, 1898; bred and exhibited by Wm. Stewart & Sons, Menie; sire Dainty Lad of Elner Shade —2245—; dam Jean Armour —2058—.
4th. Prince of Barcheskie (imp.) —1656— white and brown; calved Feb. 6, 1894; bred by A. Mitchell, Barcheskie, Scot.; sire Norseman of Balmangan (3055); dam Eva of Barcheskie —2505—

Bull, 2 Years Old.

1st. Lessnessock Royal Star (imp.) —16872— (5357) white; calved April, 1902; bred by R. Montgomerie, Lessnessock, Scot.; exhibited by A. Hume & Co., Menie, Ont.; sire Rare Style of Saturland (3905); dam Nellie of Westown.
2nd. Lessnessock Royal Warrant (imp.) —17826— (5358), white; calved April, 1902; bred by R. Montgomerie, Lessnessock, Scot.; exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Rare Style of Saturland (3905); dam Lily of the Vale 5th of Lessnessock (8499).
3rd. Rob Roy —14584— white and red; calved February 23, 1902; bred by Kains Bros., Byron, Ont.; exhibited by Wm. Stewart & Sons, Menie; sire Kitchener —12215—; dam Edina —2666—.

Bull, 1 Year Old.

1st. Right of Way of Ste. Anne's —16927— white, with red cheeks; calved March 7, 1903; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) —6955—; dam Flora's Lady (imp.) —12280—.
2nd. Sir Oliver of Woodroffe —16568— white, brown spots on head; calved Sept. 10, 1902; bred and exhibited by J. G. Clark, Ottawa; sire Comrade's Heir of Glenora —11996—; dam Loucairn 8233.
3rd. The Pilot of Glenora —16743— white, with brown spots; calved Aug. 19, 1902; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Black Prince of Whitehill (imp.) —12208—; dam Stately 9th of Muir (imp.) —12221— (13391).
4th. Garclaugh Royal Edward (imp.) —18746— (5359) white; calved March, 1903; bred by A. M. Baird, Garclaugh, Scot.; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Garclaugh Substance (5135); dam Garclaugh Snowdrop (15504).

Bull Calf, Under 1 Year.

1st. Prince Sunbeam of Glenora —18507— white and brown; calved Aug. 29, 1903; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Black Prince of Whitehill (imp.) —12208—; dam Violet 1st of Garlaff (imp.) —12226—.
2nd. Castle Glen of Ste. Anne —18582— white, red cheeks, spot on neck; calved Aug. 4, 1903; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Castlehill —14890—; dam Lady Grace of Ste. Anne's —11729—.
3rd. Lord Glencairn of Ste. Anne's —18580— white, red cheeks; calved Sept. 4, 1903; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) 6955; dam Stately 1st of Balmangan (imp.) —12282 .
4th. Reliance of Woodroffe —18747— white, red on neck and head; calved Aug. 1903; bred and exhibited by J. G. Clark, Ottawa; sire Comrade's Heir of Glenora —11996—; dam Loucairn 8233.

Bull Calf, Calved After Jan. 1st, 1904.

1st. Pearlstone of Glenora —18510— white and brown; calved Jan. 8, 1904; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire First Choice of Glenora —14950—; dam Lady Phoebe of Glenora —13486—.
2nd. Admiral Togo of Woodroffe; calved in 1904; bred and exhibited by J. G. Clark, Ottawa; sire Comrade's Heir of Glenora —11996—; dam Ethelayr 7747.
3rd. Dudley White of Ste. Anne's —18583— white, small red spots on head; calved Feb. 1, 1904; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Lord Dudley of Drumsine (imp.) —12293—; dam Primrose —11740—.
4th. Irishman's Duke —18726— white, with red markings; calved April 10, 1904; bred and exhibited by W. Stewart & Son, Menie, Ont.; sire Rob Roy —14584—; dam White Floss of Menie —2589—.

Bull, of Any Age.

1st. Howie's Fizzaway (imp.) —16721—; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.

Cow, 4 Years Old and Upwards.

1st. Garclaugh Bloomer 2nd (imp.) —16760—, white and brown; calved April, 1897; bred by A. M. Baird, Garclaugh, Scot.; exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Bogwood Prince (Vol. 26S); dam Garclaugh Bloomer 1st (Vol. 27S).
2nd. Blue Bell of Hillhouse (imp.) —12287—; calved May, 1898; bred by J. Howie, Hillhouse, Scot.; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Traveller's Heir of Hillhouse (2903); dam Blue Bell of Hillhouse (Vol. 22S).
3rd. Minnie of Lessnessrock (imp.) —9176— (1178) white; calved April, 1895; bred by Robt. Wallace, Lessnessrock, Scot.; exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Royal Macgregor of Lessnessock (3106); dam Wyllie of Lessnessock (Vol. 16S.).
4th. Favorite of Auchenbrain (imp.) —16727— (13241) marled grey; calved March, 1897; bred by Robt. Wallace, Auchenbrain, Scot.; sire Sir Thomas of Auchenbrain (2760); dam Old Beauty's Last of Auchenbrain (6894).

Cow, 3 Years Old.

1st. Blue Bell 1st of Ste. Anne's (imp.) —13129— white, dark red cheeks; calved Oct. 3, 1900; bred by J. Howie, Hillhouse, Scot.; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Strongbow of Hillhouse (4338); dam Blue Bell 1st of Hillhouse (imp.) —12287— (13162).
2nd. Lessnessock Queen of Bloom (imp.) —16769— (16172) white; calved March, 1901; bred by R. Montgomerie, Lessnessock, Scot.; exhibited by R. Hunter & Sons, Maxville, Ont.; sire General Blucher of Lessnessock (4076); dam Bloomer of Lessnessock (11778).
3rd. Lessnessock Stylish Alice (imp.) —16771— (16165) white; calved April, 1901; bred by R. Montgomerie, Lessnessock, Scot.; exhibited by R. Hunter & Sons, Maxville, Ont.; sire Rare Style of Saturland (3905); dam White Alice of Lessnessock (11009).

4th Bessie of Warkworth —14175— white, red spots on eyes and ears; calved Nov. 28, 1900; bred by Jno. Douglas, Warkworth, Ont.; exhibited by W. Stewart & Son, Menie, Ont.; sire White Prince 2nd (imp.) —808—; dam Queen May —2815—.

COW, DRY, IN CALF, ANY AGE.

1st. Jessie of Ste. Anne's 8895, white with red cheeks; calved Aug. 14, 1897; bred and exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Glencairn 3rd (imp.) 6955; dam Jennie of the Glen 6384.
2nd. Little Love —10488—; calved March 15, 1899; bred and exhibited by A. Hume & Co., Menie, Ont.; sire White Chief of Ste. Anne's —2086—; dam White Queen —2764—.
3rd. Loncairn 8233, white, red spots on head and neck; bred by Robt. Reford, Ste. Anne de Bellevue, Que.; exhibited by J. G. Clark, Ottawa; sire Glencairn 3rd (imp.) 6955; dam White Lass 5661.
4th. Dew Drop of Springhill —11513— red, with little white; calved Aug. 27, 1899; bred and exhibited by Robt. Hunter & Sons, Maxville, Ont.; sire Rapid's Wonder —9744—; dam Snowdrop of Lancaster 5861.

HEIFER, 2 YEARS OLD.

1st. Lessnessock Rare Bloom (imp.) —18555— (17104) white; calved April, 1902; bred by A. & A. Montgomerie, Lessnessock, Scot.; exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Rare Style of Saturland (3905); dam Bloomer of Lessnessock (11778).
2nd. Lessnessock Stylish Betty (imp.) —16772— (16166) white; calved April, 1902; bred by A. Montgomerie, Lessnessock, Scot.; exhibited by R. Hunter & Sons, Maxville, Ont.; sire Rare Style of Saturland (3905); dam Betty of Lessnessock (11781).
3rd. Lady Grace of Glenora —15229— white and brown; calved Aug. 10, 1901; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Douglasdale of Dam of Aber (imp.) —12212—; dam Stately of Holehouse (imp.) —12222— (13388).
4th. Auchenbrain Linnburn (imp.) —16718— (16155) brown and white; calved Aug., 1901; bred by Robt. Wallace, Auchenbrain, Scot.; exhibited by Robt. Reford, Ste. Anne de Bellevue, Que.; sire Good Hope of Auchenbrain (4350); dam Crummie of Auchenbrain (13247).

HEIFER, 1 YEAR OLD, OUT OF MILK.

1st. White Heather —16978— nearly white; calved April 14, 1903; bred and exhibited by A. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Bonnie's Pride —16885—.
2nd. Madge of Glenora —16738— white and brown; calved Aug. 2, 1902; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Douglasdale of Dam of Aber (imp.) —12212— (3954); dam Marjory 2nd of Gatesside (imp.) —9174—.
3rd. Flossie of Woodroffe —16562— mostly white; calved Sept. 5, 1902; bred and exhibited by J. G. Clark, Ottawa; sire Comrade's Heir of Glenora —11996—; dam White Floss of South Brant —10096—.
4th. Dorothy of Glenora —16735— white, and brown on neck; calved Oct. 20, 1902; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Douglasdale of Dam of Aber (imp.) —12212—; dam Georgina 2nd of Wynholme (imp.) —9168— (11777).

HEIFER CALF, UNDER 1 YEAR.

1st. Edna May of Glenora —18550— white and brown; calved Sept. 9, 1903; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Black Prince of Whitehill (imp.) —12208—; dam Glenora Daisy Queen —11422—.
2nd. Pet 2nd of Woodroffe —18752— white body, red on neck and head; calved Aug. 26, 1903; bred and exhibited by J. G. Clark, Ottawa; sire Comrade's Heir of Glenora —11996—; dam Silver Pet of Woodroffe —13039—.
3rd. Sweet Monica of Glenora —18548— white and brown; calved Sept. 8, 1903; bred and exhibited by W. W. Ogilvie, Lachine Rapids, Que.; sire Douglasdale of Dam of Aber (imp.) —12212—; dam Red Rose of Glenora —960—.
4th. Lady Pringle of Springhill —18531— white and brown; calved Oct. 2, 1903; bred and exhibited by R. Hunter & Sons, Maxville, Ont.; sire Lord Dundonald of Springhill —16729—; dam Miss Pringle 1st of Bankend —12217—.

HEIFER CALF, CALVED AFTER JUNE 1ST, 1904.

1st. Lady Menie —18727— white, with red markings; calved Jan. 5, 1904; bred and exhibited by W. Stewart & Son, Menie, Ont.; sire Rob Roy —14584—; dam Lady Ottawa —3001—.
2nd. Pride of the Hume Farm —18685— almost white; calved March 16, 1904; bred and exhibited by A. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Bonnie's Pride —16885—.
3rd. Sprightly of Menie —18728— white and red; calved Feb. 3, 1904; bred and exhibited by W. Stewart & Son, Menie, Ont.; sire Rob Roy —14584—; dam Sprightly (imp.) —1210—.
4th. Lady Eileen —18683— spotted, white and brown; calved March 6, 1904; bred and exhibited by A. Hume & Co., Menie, Ont.; sire Prince of Barcheskie (imp.) —1656—; dam Lady's Maud —3352—.

FOUR ANIMALS, THE PROGENY OF ONE BULL, ALL BRED AND OWNED BY THE EXHIBITOR.

1st. W. W. Ogilvie, Lachine Rapids, Que.
2nd. Robt. Reford, Ste. Anne de Bellevue, Que.
3rd. A. Hume & Co., Menie, Ont.
4th. J. G. Clark, Ottawa, Ont.

HERD OF 1 BULL AND 3 HEIFERS, UNDER 2 YEARS OLD, THE HEIFERS TO HAVE BEEN BRED BY EXHIBITOR AND ALL TO BE OWNED BY HIM

1st. W. W. Ogilvie, Lachine Rapids, Que.
2nd. J. G. Clark, Ottawa, Ont.
3rd. W. W. Ogilvie, Lachine Rapids, Que.
4th. A. Hume & Co., Menie, Ont.

HERD OF 1 BULL, ANY AGE, 2 FEMALES OVER 3 YEARS OLD, 1 FEMALE OVER 2 AND UNDER 3, 1 FEMALE OVER 1 AND UNDER 2, 1 FEMALE UNDER 1 YEAR, ALL OWNED BY EXHIBITOR.

1st. R. Hunter & Sons, Maxville, Ont.
2nd. R. Reford, Ste. Anne de Bellevue, Que.
3rd. W. W. Ogilvie, Lachine Rapids, Que.
4th. W. Stewart & Son, Menie, Ont.

FEMALE, ANY AGE.

1st Garclaugh Bloomer 2nd (imp.) —16760—. Exhibited by R. Hunter & Sons, Maxville, Ont.

CANADIAN HEREFORD BREEDERS' ASSOCIATION.

The fourteenth annual meeting of the Canadian Hereford Breeders' Association was held in the Royal Hotel, Guelph, Wednesday, December 7th, 1904, 10.30 a.m. In the absence of the President, W. H. Hunter, the chair was occupied by W. H. Hammell.

In the course of a few remarks, Mr. Hammell said he was pleased to see so many Hereford breeders present, and congratulated the Association on the decidedly advanced steps that had been made during the year. Herefords had come well to the front at all the live stock shows this year, and he predicted a great future for the "white faces."

The minutes of the last annual meeting were read and confirmed.

The Secretary then presented his annual report, as given below, and on motion of J. A. McDermid, seconded by F. M. Copland, it was adopted.

REPORT OF THE SECRETARY-TREASURER.

I beg leave to present the fourteenth annual report of the Society, showing the business done for the year ending December, 1904.

Registrations have increased very materially during the last year, as 875 pedigrees and 1,023 transfers have been made, against 385 pedigrees and 477 transfers for 1903. We have brought a great many pedigrees from the American Book to record new herds in the North-West and Ontario.

The present standard says that all animals must be traced to importation on the side of both sire and dam. Now we find a few animals recorded in the first two or three volumes of the American Herd Book, which most likely trace to importation, but the proofs are not given. Why not enlarge the standard by saying, and also admit all animals recorded in the American Book with pedigrees not false or spurious.

We have 61 paid members from all parts of Canada.

Volume 1 and 2 have been issued, and we are now printing the third volume, which closed on the 30th of November. It will have 2,000 pedigrees, or 1,367 more than in Volume 2, and a contract has been made for printing it at favorable terms.

A good display of Herefords was made at Winnipeg, Toronto, Calgary, Alberta, New Westminster, B.C., Victoria, B.C., Ottawa, London, Lethbridge, Alta., Halifax, N.S., Brandon, Man., Fredericton, and other exhibitions.

The following amounts were given at the Winnipeg Exhibition, 1904, Calgary Exhibition, 1904, and National Exhibition, Toronto, 1904:

National Exhibition, Toronto, $150, given by the Canadian Hereford Breeders' Association on condition that the animals competing are all recorded in the Canadian Hereford Herd Book.

1. Bull under two years. 2. Heifers one year and under two. 3. Heifers under one year. 1st prize, $30; 2nd prize, $20; 3rd prize, $10.

Female—Grand Champion, $25.

Bull—Grand Champion, $25.

Best four calves bred and owned by exhibitor, $20.

Best three animals, the get of one bull, owned by exhibitor, $20.

The sum of $25 was voted to the Winnipeg Exhibition for prizes for

Hereford cattle to be recorded in the Canadian Hereford Herd Book.

The sum of $25 was voted to the Calgary Exhibition for prizes for Hereford cattle to be recorded in the Canadian Hereford Herd Book.

The winners of our special prizes were as follows:

Winnipeg: J. A. Chapman, Beresford, Man.

Toronto: Sec. 13—The F. W. Stone Stock Co., Guelph. Ont.

Sec. 17—H. D. Smith, Compton, Que.

Calgary: Jas. Tough, Edmonton, Alta.

This is the first year we have given funds for prizes, and as they had all to be recorded in the Canadian Herd Book, it has been the means of getting registrations that we would not have procured otherwise. Several of the large breeders in the North-West and in Ontario are now recording their entire herds with us, and if the rest of the breeders fall in line, as they no doubt will, we will be able to have more funds to distribute at the various Provincial exhibitions; and as this Association is incorporated under the Dominion Act respecting Live Stock Record Association at the Department of Agriculture, Ottawa, it is thereby national in its character, and not merely Provincal, as it has been stated. Our officers are distributed over all the Provinces, and our registrations extend from the Atlantic to the Pacific Ocean.

H. Wade, Secretary-Treasurer.

FINANCIAL STATEMENT, 1904.

Report of Treasurer for the Year Ending November 30th, 1904.

Receipts.

1903.			
Nov. 30.	To balance on hand	$529 66	
	61 members at $2	122 00	
	Registration fees	917 75	
			$1,569 41

Expenditure.

1903.			
Nov. 30.	By commission on 875 peds. at 35c.	$306 25	
	commission on 1,023 trans. at 10c.	102 30	
	Cash Cattle Breeders' Association, 48 members at 50c.	24 00	
	Postage and telegrams	30 67	
	Printing and stationery	49 95	
	Auditor and stenographer	8 00	
	Prizes at exhibitions	195 00	
	Committee expenses and delegation	55 20	
	Balance on hand	798 04	
			1,569 41

H. Wade,
Secretary-Treasurer.

Toronto, Nov. 30, 1904.

THE HERD BOOK.

The Secretary: During the fire in 1894 all the manuscript for the first volume of the Canadian Hereford Herd Book was destroyed. A circular was issued, requesting all breeders who had recorded any animals to send in the certificates which they had in their possession in order that the Secretary

might copy them, but a great number of these certificates had been lost, and it was impossible for the breeder to send in any more than the name and number, and these names and numbers were printed in the first volume of the record without giving the pedigree.

Mossom Boyd, in speaking regarding this matter, said: I would like to draw the attention of this meeting to a point that was brought to my notice a year or two ago, and that is that the first volume of our Herd Book, by reason of the fire, which destroyed a number of pedigrees, has been very much mutilated. There are a great many animals' pedigrees with names and numbers and without pedigrees, in the volume.

Now, what I would like to ascertain is whether there are many of these animals without pedigrees whose blood continues down in our herds at present. I fancy, from what I have heard from Mr. Wade and others, that there is very little of that, and perhaps there may prove to be none; and in case there should prove to be none, or very few, I think possibly it would be desirable that those should be removed from the Herd Book, because it gives it a very bad appearance.

J. A. McDermid: That is correct.

Mossom Boyd: All I ask is that this matter be looked into, to find out how many of these animals' pedigrees are in the breed in Canada. If a census were taken, it may be found there were very few, and what few there are —by arrangement with those people who own them—might be taken out with the consent of their owners, because it is very desirable we should have a first-class Herd Book. We have on the American side a very excellent book, and very well managed, and it is also desirable that we should make ours an excellent book. We have a great many Canadian breeders registering in the United States who neglected the Canadian Herd Book, but as there are more recording in the Canadian Book now and it is growing rapidly, we should endeavor to try and make it a first-class book in every way, because I look forward to the time when our Herefords will increase to many thousands instead of one or two thousand, as at present. In the American Book they record about twenty thousand each year, and that number of registrations at $1 a piece brings in a large sum of money to help the breed along for one thing; and besides, it shows the increase we may expect, seeing we have a country quite as large and quite as well adapted for raising Herefords as the United States. Before our Herd Book gets too cumbersome, it might be as well to run the three volumes into one, and in this way it may more easily be put on a first-class standard to start with; and I would ask that a committee be appointed to enquire into this matter and report at the next annual meeting.

The Secretary: I think Mr. Boyd is all right in a sense: but all these pedigrees which were burnt were passed originally by the office, and no doubt are correct. There were some three or four got in from the Quebec Book, but they were cancelled, and so far as we know every pedigree in the Book is correct. What I want you to understand is, we do not think there are any pedigrees in the book that run to the woods.

Alf Stone: It struck me while Mr. Boyd was speaking that as these burnt pedigrees have not turned up in any great numbers they may have been in the hands of persons who have been wiped out.

Mossom Boyd: We think the pedigrees were right, but the pedigrees were simply burnt, and no pedigrees whatever appear in the volume, only the names and the numbers. Now, in the North-West trade we have to compete with Americans, and the Americans will send their bulls and cows into our North-West, and they will possibly try to run down our animals and pedigrees and say, "Look at these (referring to the names and numbers with-

out pedigrees), they are nice sort of pedigrees you are breeding cattle from." We want to avoid that now in the early stages if we can.

ALF STONE: The very fact that these pedigrees appear with names and numbers shows they have come in directly through some pedigrees.

Mr. BOYD thought it would have been better to have the words "pedigree burnt" appear after the name in the body of the pedigree in which they referred to, instead of having the name and number appear without any pedigree.

On motion of MOSSOM BOYD, seconded by R. W. STUTT, it was resolved: "That a committee be apointed to gather information regarding the number of animals' pedigrees affected by those whose pedigrees are not given in full in the Herd Book, and report at the next annual meeting as to the best means of remedying the matter."

F. M. COPLAND moved, seconded by J. A. GOVENLOCK, that the following gentlemen compose the committee: Mossom Boyd, Alf. Stone, J. A. McDermid, and H. Wade, Secretary. Carried.

The Secretary suggested in his annual report that the standard be amended so as to admit of all animals recorded in the American Book whose pedigrees were pure, and on motion of F. M. COPLAND, seconded by H. REID, it was resolved: "That the Canadian Hereford Breeders' Association amend their standard so as to admit of all pedigrees of animals recorded in the American Hereford Record whose pedigrees are not false or spurious."

It was resolved that the Secretary be requested to get an official stamp for the Hereford Association.

The meeting voted the sum of $150 to the National Exhibition at Toronto under the same conditions as last year, that the animals be all recorded in the Canadian Hereford Herd Book.

Junior Herd—One bull under two years, two heifers one year and under two, two heifers under one year. 1st prize, $30; 2nd prize, $20; 3rd prize, $10. Best three animals the get of one bull owned by the exhibitor, $20. Best four calves bred and owned by exhibitor, $20.

Female—Grand champion, $25.

Bull—Grand champion, $25.

They also voted that the Ontario members be made members of the Cattle Breders' Association at 50 cents per head.

The meeting then adjourned.

OFFICERS FOR 1905.

President .....R. J. Mackie, Oshawa.
Vice-President .....J. A. McDermid. Stayner.

VICE-PRESIDENTS FOR THE PROVINCES.

Ontario .....J. A. Govenlock, Forest.
Quebec .....H. D. Smith, Compton.
Nova Scotia .....W. W. Black, Amherst.
New Brunswick .....H. B. Hall, Gagetown.
Manitoba .....Jas. A. Chapman, Beresford.
Alberta .....C. Palmer, Lacombe.
Assiniboia .....R. Sinton, Regina.
British Columbia .....J. L. McKay, Sinclair, B.C.

DIRECTORS.

A. E. Philp, Brandon, Man.
W. H. Hunter, The Maples.
R. W. Stutt, Forest.
Thos. Skippon, Hyde Park.
T. H. Reid, Holstien.
M. O'Neil, Southgate.
A. Warnica, Painswick.
F. M. Copland, Harriston.
H. Reid, Mimosa.
A. Stone, Guelph.
W. H. Hammell, Beeton.
Mossom Boyd, Bobcaygeon.

Secretary Treasurer and Editor .....H. Wade, Toronto.

DELEGATES TO THE DIFFERENT EXHIBITIONS:

Winnipeg Exhibition .....Jas. A. Chapman, Beresford, Man.
Ottawa Exhibition .....H. Wade, Toronto.
Winter Fair, Guelph .....W. H. Hunter and A. Stone.
Maritime Winter Fair Amherst, N.S.....W. W. Black, Amherst, N.S.
London Exhibition .....M. O'Neil and R. W. Stutt.
Toronto Exhibition .....R. J. Mackie and H. Wade.
Calgary Exhibition .....J. T. Parker, Lethbridge, Alta.

HEREFORD MEMBERS, 1905.

Bedford, Jos. .....Richmond, Que.
Bennett, W. .....Chatham.
Boyd Co., Mossom ....Bobcaygeon.
Boote, Harold V. .....La Riviere, Man.
Cameron, A. .....Oak Lake, Man.
Clifford, Wm. .....Austin, Man.
Copland, F. N. .....Harriston.
Edwards & Co., W. C...Rockland.
Elliott & Son, Wm. ....Porter's Hill.
Ellis, Mrs. Caroline ..Innisfail, Alta.
Fleming, Hy. .....Craigleith.
Foxall, B. J. .....Ewing, Alta.
Found, John .....Oshawa.
Govenlock, J. A. .....Forest.
Guy, S. W. .....Griersville.
Garth, Thos. .....Griswold, Man.
Gillies, Wm. .....Robb.
Hall, H. B. .....Lloydminster, Sask.
Henry, T. G. .....Mono Mills.
Hammill, W. H. .....Beeton.
Hanna, E. W. .....Griswold, Man.
Hodson, F. W. .....Ottawa.
Hunter, A. S. .....Durham.
Hunter, W. H. .....The Maples.
Hinde & Son, Wm. ....Harriston.
Hillborn, W. & E. ....Kettleby.
Jackson, J. S. .....Ramona.
Jenkins, Jos. .....Pearcely.
Leask, R. & J. .....Watford.
Lee, R. S. .....Williamsford.
Leonard, Wm. .....Forest.
Little, Jas. .....Vanvlack.
Lovering, J. A. .....Lovering.
Mace & Lawrence ....Petisko, Alta.
Mackie, R. J. .....Oshawa.
Miller, W. J. .....Solsgirth, Man.
McDiarmid, J. A. .....Stayner.
McDiarmid, P. T. .....Duntroon.
McLenzie, Jas. .....Burnside, Man.
McLean, W. J. ..... Elmgrove.
McLeach, R. B. .....Lacombe, Alta.
O'Neill Bros. .....Southgate.
Oliver, Thos. .....Bagot, Man.
Penhall, R. J. .....Nober.
Parker, John T. .....Lethbridge, Alta.
Phillip, A. E. .....Brandon, Man.
Popplewood, Rich. ....Elliott.
Randell, Ralph .....Shoal Lake, Man.
Reaman, I. .....Concord.
Reed, H. .....Mimosa.
Reid, J. W. .....Olds, Alta.
Reid, H. & J. ..... Epping.
Reid, Thos. H. .....Holstein.
Reid, John H. .....Moosomin, Assa.
Richardson & Giles ....Rush Lake, Man.
Sandeman, Eric .....Livingstone, Alta.
Shouldice, Jas. .....Namaka, Alta.
Sims, Edwin .....Woodroyd, Man.
Sinton, Robt. .....Regina, Assa.
Skippon, Thos. .....Hyde Park.
Smith, H. D. .....Compton, Que.
Stone, Alf. .....Guelph.
Stone Stock Co., F. W.Guelph.
Stutt, R. M. .....Forest.
Sutherland, A. .....Bond Head.
Stutt, Wm. .....Forest.
Shannon Bros. .....Arnprior.
Tough, Jas. .....Edmonton, Alta.
Thompson, E. A. .....Wakopa, Man.
Wallace, John .....Cartwright, Man.
Warnica, Asa H. .....Painswick.
Whitman Bros. .....Canyon, Texas, U.S.
Wilcox, F. J. .....Lamerta, Alta.
Wright, Herbert .....Guelph.

PRIZE-WINNING HEREFORDS AT THE CANADIAN NATIONAL EXHIBITION, TORONTO, 1904.

BULL, 3 YEARS OLD AND UPWARDS.

1st. Stone's Clarence 2nd (imp.) —1713—; calved Jan. 23, 1900; bred by F. W. Stone, Jr., Ridge, Eng.; exhibited by The F. W. Stone Stock Co., Guelph, Ont.; sire Clarence (15944); dam Sweetheart 33rd (imp.) —2120—.
2nd. Corporal (imp.) —2405—; calved March 10, 1901; bred by H. F. Russell, Westonbury, Eng.; exhibited by R. Penhall, Nober, Ont.; sire Peer (18006); dam College Belle.
3rd. Baronet (imp.) —1292—; calved Jan. 13, 1898; bred by A. P. Turner, Penibridge, Eng.; exhibited by the F. W. Stone Stock Co., Guelph, Ont.; sire Statesman (14938); dam Cordelia 84152.

BULL 2 YEARS OLD.

1st. Bourton Ingleside —2410—; calved Dec. 5, 1901; bred and exhibited by H. D. Smith, Compton, Que.; sire Mark Hanna —1042—; dam Lady Bountiful —3045—.
2nd. Improver —1563—; calved Dec. 15, 1901; bred and exhibited by W. H. Hunter, The Maples; sire Young Actor —1250—; dam Brenda 4th —1668—.

BULL, 1 YEAR OLD.

1st. Crion —1745—; calved Sept. 10, 1902; bred and exhibited by W. H. Hunter, The Maples; Sire March On 2nd —1475—; dam Brenda 3rd —1667—.
2nd. Imperial —2034—; calved July 17, 1903; bred by C. N. Armour, Kansas City; exhibited by J. A. Govenlock, Forest, Ont.; sire Majestic —2033—; dam Butter Maid 2nd (imp.) —2123—.
3rd. Prince Charming —1979—; calved Nov. 3, 1902; bred and exhibited by the F. W. Stone Stock Co., Guelph, Ont.; sire Stone's Clarence 2nd (imp.) —1713—; dam Peach 36th —2413—.

Bull Calf, Under 1 Year.

1st. Forest Ride —2403—; calved Oct. 4, 1903; bred and exhibited by J. A. Govenlock, Forest, Ont.; sire Whitney —1570; dam Julia —1911—.
2nd. Spartacus 2nd —2087—; calved Nov. 13, 1903; bred and exhibited by W. H. Hunter, The Maples; sire Spartacus —1716—; dam Brenda 4th —1668—.
3rd. Homer —2163—; calved Sept. 5, 1903; bred and exhibited by W. H. Hunter, The Maples; sire Spartacus —1716—; dam Miss Ada 10th (imp.) —1251—.

Bull, Any Age.

1st. Bourton Ingleside —2410—, exhibited by H. D. Smith, Compton, Que.

Cow, 4 Years Old and Upwards.

1st. Duxmoor Brenda 78778; exhibited by H. D. Smith, Compton, Que.; sire Launcelot 76966; dam Lady Brenda 76329.
2nd. Buttermaid 2nd (imp.) —2123—; calved July 10, 1899; bred by W. T. Barnaby, Bromyard, Eng.; exhibited by W. H. Hunter, The Maples; sire Happy Hampton (16097); dam Buttermaker 138044.
3rd. Peach 34th —2412—; calved Dec. 25, 1898; bred by F. W. Stone, Guelph, Ont.; sire Barbette —1290—; dam Peach 28th —2411—.

Cow, 3 Years Old.

1st. Sweetheart 34th —2417—; calved Jan. 31, 1901; bred and exhibited by the F. W. Stone Stock Co., Guelph, Ont.; sire Baronet —1292—; dam Sweetheart 33rd (imp.) —2120—.
2nd. Amy 3rd of Ingleside 140077; bred and exhibited by H. D. Smith, Compton, Que.; sire Lord Ingleside 5th 83600; dam Amy 3rd 43430.
3rd. Ruby —1864—; calved Dec. 22, 1900; bred by W. S. Van Natta & Son, Fowler, Ind.; exhibited by J. A. Govenlock, Forest, Ont.; sire Christopher —1274—; dam Brenda 3rd —1667—.

Heifer, 2 Years Old.

1st. Sylvan 19th of Ingleside 154186; bred and exhibited by H. D. Smith, Compton, Que.; sire Mark Hanna —1042—; dam Sylvan 7th of Ingleside 73756.
2nd. Sweet Bar —2418—; calved Jan. 20, 1902; bred and exhibited by the F. W. Stone Stock Co., Guelph, Ont.; sire Baronet (imp.) —1292—; dam Sweetheart 33rd —2120—.
3rd. Hazel Bar —2416—; calved Dec. 12, 1901; bred and exhibited by the F. W. Stone Stock Co., Guelph, Ont.; sire Baronet (imp.) —1292—; dam Hazel Duchess 8th —2410—.

Heifer, 1 Year Old.

1st. Amy 4th of Ingleside —3045—; calved Sept. 2, 1902; bred and exhibited by H. D. Smith, Compton, Que.; sire Mark Hanna —1042—; dam Amy 3rd 43420.
2nd. Peachstone C. —2415—; calved Oct. 14, 1902; bred and exhibited by the F. W. Stone Stock Co., Guelph, Ont.; sire Stone's Clarence 2nd (imp.) —1713—; dam Peach 34th —2412—.
3rd. Rose Bud —2363—; calved March 23, 1903; bred by W. H. Hunter, The Maples; exhibited by J. A. Govenlock, Forest, Ont.; sire Spartacus —1716—; dam Lily K. —1781—.

Heifer Calf Under 1 Year.

1st. Sylvan 20th of Ingleside; bred and exhibited by H. D. Smith, Compton, Que.; sire Prince Ingleside 2nd 93917; dam Cherry 25th 48212.
2nd. Lady Claire —2771—; calved Nov. 7, 1903; bred and exhibited by W. H. Hunter, The Maples; sire Majestic (imp.) —2033—; dam Begonia 8th (imp.) —2764—.
3rd. Prudence —2548—; calved Sept. 10, 1903; bred and exhibited by W. H. Hunter, The Maples; sire Spartacus —1716—; dam Brenda 5th —1669—.

Graded Herd of Bull 2 Years Old and Over, Cow 3 Years and Over, Heifer 2 Years and Under 3, Heifer 1 Year and Under 2, and Heifer Under 1 Year.

1st. H. D. Smith, Compton, Que.
2nd. The F. W. Stone Stock Co., Guelph, Ont.
3rd. W. H. Hunter, The Maples, Ont.

Female, Any Age.

1st. Sweetheart 34th —2417—; exhibited by the F. W. Stone Stock Co., Guelph, Ont.

Junior Herd, 1 Bull Under 2 Years, 2 Heifers 1 Year and Under 2, 2 Heifers Under 1 Year.

1st. W. H. Hunter, The Maples, Ont.
2nd. J. A. Govenlock, Forest, Ont.
3rd. The F. W. Stone Stock Co., Guelph, Ont.

Female Grand Champion.

1st. Sweetheart 34th —2417—; exhibited by the F. W. Stone Stock Co., Guelph, Ont.

Bull Grand Champion.

1st. Bourton Ingleside —2410—; exhibited by H. D. Smith, Compton, Que.

CANADIAN HACKNEY HORSE SOCIETY.

ANNUAL MEETING.

The thirteenth annual meeting of the Canadian Hackney Horse Society was held in Grand's Repository, Toronto, January 31st, 7.30 p.m., 1905, the President, Thos. Graham, in the chair.

On motion the minutes of the last annual meeting were accepted as read.

REPORT OF THE SECRETARY-TREASURER.

I beg leave to present the thirteenth Annual Report of this Society for the year ending December 31st, 1904.

We have recorded 92 pedigrees and have made 30 transfers, against 93 pedigrees and 8 transfers in 1903, not much advancement from the previous year. When the first volume is issued we should expect better results. A few foundation mares have been inspected both in Ontario and Calgary.

Last year we had 21 members at $5 per annum, this year 22 members at $3; the decrease in membership fee only adding one more member. We hope to do better this year.

A new standard, somewhat higher than the one that was burnt, was adopted, and will be printed in the volume now nearly completed.

The first volume is now complete and is only waiting for time to prepare a preface with a history of the origin and usefulness of Hackneys both in Britain and America. It contains the pedigrees of 345 stallions, 300 mares and 48 inspected mares, or foundation stock. It will, we hope, be of great value to Hackney breeders as a work of reference, giving them the knowledge of how to commence the good work of breeding up from foundation stock. It is printed on good paper, will have several cuts of celebrated stallions and mares, and the editor hopes it will be a credit to the Society.

The demand for high-stepping carriage horses still remains excellent, in spite of the craze for automobiles, and good ones are scarce and held at fancy prices. Since the Chicago and New York Horse Shows, in both of which Hackneys defeated all comers in the heavy harness classes, many horsemen are turning their attention to them, and the future is bright for the breeders of this fine animal. Although not speedy, they are well adapted to pull heavy carriages in crowded parks and city streets and show good style and manners.

Mr. Eben D. Jordan, proprietor of the Plymouth Hackney Stud, and owner of the celebrated Radient, Hildred, and the Baron, that took so many honors in Chicago and New York as harness horses, gives his views of Hackneys as follows:—

First, that the Hackney type, with his characteristic action, is accepted as the model for heavy harness horses to-day in our country.

Second, that the Hackney stallion is the most prepotent of all the heavy harness breeds at our command.

Third, that the Hackney breed has of late years been more successful in the prize ring of our eastern shows in heavy harness classes than any other breed, taking into consideration the number of entries in the breeds contesting.

Fourth, that the Hackeny and half-breeds have realized the highest average price of any other breed or cross of heavy harness horse offered at the breeder's hands.

A sum amounting to $200 was given; $75 to the Canadian Horse Show, $25 for a Championship Cup at Calgary, $50 to the Dominion Show at Winnipeg and $50 to the National Exhibition at Toronto.

Premiums and honors were gained in the United States during the year by Robert Beith, of Bowmanville. An American journal says:

"It is rather surprising that our hackney breeders should make it possible for a Canadian breeder to come to our exhibitions and carry away the majority and the best of the prizes offered for that useful breed. At the St. Louis Horse Show, recently held, Mr. Robert Beith, of Bowmanville, Ont., was the only Canadian breeder who dared the experiment of bringing his valuable stable to this country, risking all the dangers concurrent with such a trip, from change in weather conditions, transportation, etc., but he was well rewarded. His stallion Saxon, already champion of several American shows and most of the Canadian shows where he has been entered, again added to his laurels by winning the Grand Championship, as well as first in a great class for four-year-olds. Mr. Beith also won first in the two-year-old class, the class for mares four years old and over, and for two years old and under three, the aged stallion class and the Grand Championship for mares."

Also at the International Show at Chicago he won first in class and championship with Saxon—97—; first in two year olds, by St. David—216—; 2nd with Cliffe Rosador—219—; also 1st and 2nd with mares Priscilla—236— and Winona—237—, Priscilla also taking championship—a pretty good record for his string of Hackneys. He has, by his success, helped to increase the good impression among our neighbors to the south of us as to Canada's ability to lead in the production of live stock.

A good many Hackney stallions have been imported this year, showing that the demand is increasing in Canada for this valuable breed of horses.

List of Inspectors at Present Date.

Ontario.

John Carson	Kingston.
Dr. Melean	Meaford.
J. D. O'Neill, V.S.	London.
Thos. Irving	Winchester.
Robert Bond	Toronto.
Robert Graham	Claremont.
Robert Beith	Bowmanville.
H. N. Crossley	Rosseau.
A. Wilson	Paris.
Adam Beck	London.
Richard Gibson	Delaware.

Quebec.

Robert Ness	Howick.
Jas A Cochrane	Hillhurst.
Prof. McEachern	Montreal.

Nova Scotia.

A. S. Slip	Truro, N.S.

Manitoba.

J. A. S. McMillan.....Brandon, Man.

Alberta.

J. Riddle, V. S.....Calgary.

HENRY WADE,
Secretary Treasurer.

Upon motion of H. N. Crossley, seconded by Robert Beith, the Secretary's report, as given above, was adopted.

FINANCIAL STATEMENT OF CANADIAN HACKNEY HORSE SOCIETY.

FOR THE YEAR ENDING DECEMBER 31ST, 1904.

RECEIPTS.

Balance from 1903	$503 81
Inspection fees	31 00
22 members at $3	66 00
Registration fees to date	221 50
	$822 31

EXPENDITURE.

Postage	$5 00	
Stationery and printing	31 44	
		$36 44
Prizes and cups		200 00
Auditor and stenographer		6 00
Committee and convention expenses	$60 00	
Inspection expenses	28 80	
		88 80
Affiliation fee for medals (England)		5 21
Commission on 92 peds. at 35c.	$32 20	
Commission on 30 trans. at 15c.	4 50	
		36 70
Balance on hand		449 16
		$822 31

The accompanying statement is correct, and in accordance with the books of the Hackney Horse Society.

H. WADE, Secretary-Treasurer.
CHAS. F. COMPLIN, Auditor.

TORONTO, ONT., January 12th, 1905.

On motion of Robert Miller, seconded by Robert Beith, it was resolved:

"That the Canadian Government be and is hereby asked to take steps to regulate the further importation of horses, cattle, sheep and swine.

"And it is further resolved: That animals for breeding purposes be admitted free of duty when pure bred, registered in the authorized book or records of the Dominion of Canada, or of the country in which the breed originated, and when owned by a *bona fide* resident of the Dominion."

In speaking to the resolution Mr. Miller said:—We think,—all live stock breeders think—we are capable of looking after ourselves if put on an equal footing. I am sure we are not afraid to go into competition with any nation on earth as far as pure bred stock is concerned, but as it is at present we are not on a fair footing. It is not for retaliation at all that I ask legislation of that kind, it is simply a matter of looking after our own interests.

The United States have said to us most distinctly, "We do not want you to send your goods into this country, and we will restrict them to such an extent that it is almost prohibition." They have not only done that, but they are taking very strong steps, and very successful steps, towards taking that market in the West which we very people of Ontario should have. Now I do not think we are doing our utmost unless we have this motion passed.

Mr. Miller, in speaking further, regarding the nationalization of the records, said: At one time I was opposed to nationalization of the records, as I was under the impression they would be under political control, but we are given every guarantee by the Minister of Agriculture at Ottawa, and by those he has surrounded himself with, that the entire control of the Associations would be in the breeders' hands; and I now believe we will be quite safe in taking the steps we are recommended to take in having our records nationalized, and in having for Shorthorns one large record, for Hackneys one large record, and so on; and I believe if we do this we will be safe with the railroads, but if we do not do this the railroads say they will take away the privileges they so liberally extended to us. I think that is one of the great reasons why we should nationalize, and I would be very much in favor of passing a resolution for the nationalization of our records.

Mr. Robert Beith: At one time I was very much opposed to the nationalization of our records, but upon getting further information with regard to it a few days ago my views have entirely changed and I am entirely in sympathy with the movement as far as Hackneys are concerned. In fact, I think all our records should be nationalized so long as we have control of our own Associations. I do not think it is necessary for me to say anything further, as Mr. Hodson has explained it thoroughly to this meeting, and I think they are pretty well prepared for the motion.

C. C. Gardiner, Charlottetown, P.E.I.: I do not think it is necessary for me to add anything further to what has been said. However, I think it is very essential that we should have only one Herd Book for each breed in Canada. I think it very unfortunate we should have records in New Brunswick and Prince Edward Island for the different breeds instead of having one record for the whole Dominion.

It was then moved by Robert Beith, seconded by Robert Miller:

"That the Canadian Hackney Horse Society at once proceed to nationalize the Hackney Records and Association, with the office to be transferred from Toronto to Ottawa, and that Mr. F. M. Wade be Registrar; and that the mover and seconder together with Thos. Graham and H. N. Crossley, be a committee to meet the Dominion Live Stock Commissioner and at once complete arrangements." Carried unanimously.

The meeting then adjourned.

OFFICERS FOR 1905.

President .....Robert Miller, Stouffville, Ont.
1st Vice-President .....E. C. H. Tisdale, Beaverton, Ont.
2nd Vice-President .....O. Sorby, Guelph, Ont.

VICE-PRESIDENTS FOR THE PROVINCES:

Ontario .....R. W. Davies, Toronto.
Quebec .....Robert Ness, Howick, Que.
Alberta .....A. M. Rawlinson, Calgary.
Manitoba .....J. A. S. McMillan, Brandon.
New Brunswick .....Mr. Jewett, Fredericton.
Nova Scotia .....Hon. T. R. Black, Amherst.
P. E. Island .....C. C. Gardiner, Bideford.
British Columbia .....D. Tolmie, Victoria.

DIRECTORS:

Thos. Graham, Claremont.
E. C. H. Tisdale, Beaverton.
Robert Miller, Stouffville.
Dr. And. Smith, Toronto.
Robert Beith, Bowmanville.
H. N. Crossley, Rosseau
E. C. Attrill, Goderich.
O. Sorby, Guelph.
F. E. Came, Montreal, Que.

Secretary-Treasurer: H. Wade, Parliament Buildings, Toronto.
Registrar: F. M. Wade, Ottawa.

DELEGATES TO FAIRS AND ASSOCIATIONS:

Industrial: Thos. Graham and E. C. H. Tisdale.
Western Fair: E. C. Attrill and L. L. Pound, Glen Colin.
Ottawa Central Fair and Ottawa Spring Horse Show: Robert Beith, Bowmanville; and F. M. Wade, Ottawa.
Montreal Spring Horse Show and Sherbrooke Fair: F. E. Came, Montreal, Que.; and Robert Ness.
Woodbridge and Markham Fairs: R. W. Davies, Robert Bond, and H. Wade.
Horse Breeders' Association: Thos. Graham and E. C. H. Tisdale.
Spring Horse Show, Toronto: H. M. Robinson, Toronto.
St. John, Halifax and Frederieton: Hon. T. R. Black and Mr. Jewett.

LIST OF MEMBERS, 1904.

Attrill, E. C. ..... Goderich, Ont.
Bawdon & McDonell .. Exeter.
Beith, Robt. ..... Bowmanville, Ont.
Black, T. R. ..... Amherst, N.S.
Bond, Robt. ..... Toronto.
Carruthers, I. ..... Tillsonburg.
Cochrane, L. W. ..... Crawfordsville, Ind.
Caine, T. E. ..... Montreal, Que.
Crossley, H. N. ..... Rosseau.
Davies, Robt. ..... Toronto.
Davies, Robt. Jr. ..... Toronto.
Edwards & Co., W. C... Rockland.
Flora, Morris ..... Crawfordsville, Ind.
Jewett, H. C. ..... Fredericton, N.B.
Hogate, J. B. ..... Sarnia.
Hodson, F. W. ..... Ottawa.
Irving, Thos. ..... Winchester.
Miller, Robt. ..... Stouffville.
Macauley, T. B. ..... Montreal, Que.
McMillan, J. A. S. ..... Brandon, Man.
McRae, C. L. ..... Beaverton.
Pepper, Geo. ..... Toronto.
Pound, L. L. ..... GlenColin.
Rawlinson Bros. ..... Calgary, Alta.
Robinson, H. M. ..... Toronto.
Robson, Capt. T. E. .. Ilderton.
Shier, Wm. ..... Cannington.
Speneeley, H. J. ..... Box Grove.
Sorby, O. ..... Guelph.
Smith, Dr. A. ..... Toronto.
Smith, D. King ..... Toronto.
St Clair, A. ..... Aylmer.
Tisdale, E. C. H. ..... Beaverton.
Trotter, Rev. Ralph W. Aylmer West.
Truman Bros. ..... Rushnell, Ill., U.S.
Webster, M.D., C.A. .. Yarmouth, N.B.
White, A. A. ..... Acton.
Yeager, A. ..... Simcoe.

PRIZE-WINNING HACKNEYS AT THE CANADIAN NATIONAL EXHIBITION, TORONTO, 1904.

STALLION, 4 YEARS OLD AND UPWARDS.

1st. Saxon —97— dark brown, star, off fore coronet and both hind heels white; foaled May 2, 1899; bred by Rawlinson Bros., Calgary, Alta.; exhibited by Robt. Beith, Bowmanville, Ont.; sire Robin Adair 2nd (imp.) —63—; dam —64— Fimber Pride (imp.) by Charley Merrylegs 3rd (1734).
2nd. Bell Boy —108— 282 chestnut, star, near hind leg white; foaled 1895; bred by Dr. W. Seward Webb, Shelburne, Vt.; exhibited by Robt. Ness & Sons, Howick, Que.; sire Courier (imp.) —26—; dam —62— Belle Lyons, by Candidate (920).
3rd. Hillhurst Sensation —58—, bay, white on off hind foot; foaled April 30, 1895; bred by Hon. M. H. Cochrane, Hillhurst, Que.; exhibited by A. Yeager, Sigicoe, Ont.; sire Haydon Shales (imp.) —22—; dam —16— Miss Baker (imp.) by Ruby (1342).

STALLION, 3 YEARS OLD.

1st. Thornton Royalty (imp.) —229— (8393) brown, blaze, off fore coronet and hind fetlocks white; foaled 1901; bred by C. V. Howorth, Thornton, Eng.; exhibited by J. B. Hogate, Sarnia, Ont.; sire Demas (6331); dam (9442) Priory Fame by His Majesty (2513).
2nd. Income (imp.) —226— (8203) chestnut, stripe, off fore foot and near hind fetlocks white; foaled 1901; bred by J. B. Barnard, Rudstone, Eng.; exhibited by W. C. Quickfall, Glenallan, Ont.; sire Rosador (4964); dam (10428) Princess, by Garton's Duke of Connaught (3009).
3rd. Norfolk Performer —131— bay, few white hairs on forehead, feet and pasterns white; foaled May, 1901; bred by H. N. Crossley, Rosseau, Ont.; exhibited by Dent Dalton, Delhi, Ont.; sire Rosseau Performer (imp.) —34—; dam —11— Lady Cocking, by Royal George (683).

STALLION, 2 YEARS OLD.

1st St. David (imp.) —216— chestnut, stripe, near fore and off hind feet white; foaled 1902; bred by R. Ford, Wakefield, Eng.; exhibited by Robt. Beith, Bowmanville Ont.; sire President Roosevelt (8266); dam Lady Pilkington by Pioneer (1088).
2nd. Cliffe Rosador (imp.) —219— chestnut, mark on face, 4 white fetlocks; foaled 1902; bred by J. H. Holdridge, Hosham, Eng.; exhibited by Robt. Beith, Bowmanville Ont.; sire Rosader (4964); dam (5148) Cliffe Rose by Prince Alfred (1325).
3rd. Salford Roseus (imp.) —812— chestnut, blaze, 2 white feet; foaled 1902; bred by Col. Lees Knowles, Westwood, Eng.; exhibited by J. B. Hogate, Sarnia, Ont.; sire Rosador (4964); dam (2624) Charming May by Lord Derby 2nd (417).

STALLION, 1 YEAR OLD.

1st. Lord Meltonby (imp.) —215— bay, white hind fetlocks; foaled 1903; bred by E. Hole, Toder, Eng.; exhibited by R. Beith, Bowmanville, Ont.; sire Royal Denmark (8624); dam Meltonby Nancy by Prince Alfred (1325).
2nd. Mr. Dooley —190— brown, hind feet white; foaled June, 1903; bred and exhibited by R. Beith, Bowmanville, Ont.; sire Alarm —134—; dam —105— Lady Brookfield by Cadet (imp.) —15—.

STALLION, ANY AGE.

1st. Saxon —97—; exhibited by R. Beith, Bowmanville, Ont.

FILLY, 3 YEARS OLD.

1st. —261— Smylett Duchess (imp.) dark chestnut, star, near hind foot white; foaled 1901; bred by W. D. Petch, Pocklington, Eng.; exhibited by R. Beith, Bowmanville, Ont.; sire His Majesty (2513); dam (12308) Smylett Rose by Donegelt (174).
2nd. —212— Woodlands Queen, brown, star, white on off hind heel; foaled May 17, 1901; bred by Dr. B. Gallop, Milton, Ont.; exhibited by A. G. H. Luxton, agent, Milton; sire Woodlands Performer —68—; dam [—192— Kate].

FILLY 2 YEARS OLD.

1st. —260— (16250) Terrington Bonniebell (imp.), chestnut, star and stripe near fore pastern and hind legs white; foaled 1902; exhibited by R. Beith, Bowmanville, Ont.; sire Bonfire (2381); dam (11294) Miss Caxton by Caxton (2398).
2nd. —164— Rickell's Heiress, chestnut, hind feet white; foaled April 11, 1902; bred and exhibited by H. N. Crossley, Rosseau, Ont.; sire Squire Rickell —74—; dam —20— Althorpe Countess (imp.) by Enthorpe Performer (2973).

FILLY, 1 YEAR OLD.

1st. —244— Rosalie, bay, near fore and near hind feet white; foaled April 27, 1903; bred and exhibited by R. Beith, Bowmanville, Ont.; sire Alarm —134—; dam —3— Florence (imp.) by Randolph (1123).
2nd. —245— Wild Violet, bay, off hind foot white; foaled May 14, 1903; bred and exhibited by R. Beith, Bowmanville, Ont.; sire Alarm —134—; dam —106— Wild Mint (imp.) oy Confidence (158).

BROOD MARE WITH FOAL OF SAME BREED BY HER SIDE.

1st. —133— Queen of the Party, chestnut roan, stripe, inside of coronet on nigh fore leg white, off fore foot and hind legs white; foaled April 12, 1900; bred and exhibited by H. N. Crossley, Rosseau, Ont.; sire Rosseau Performer (imp.) —34—; dam —11— Lady Cocking (imp.) by Royal George (683).
2nd. —193— Canadian Queen, bay, star, hind legs white; foaled Nov. 10, 1898; bred and exhibited by R. Beith, Bowmanville, Ont.; sire Squire Rickell —74—; dam —70— Cherry Ripe by Jubilee Chief (imp.) —108—.
3rd. —105— Lady Brookfield, brown, hind feet white; foaled 1895; bred by C. McDowell, Lansdale, Pa.; exhibited by R. Beith, Bowmanville, Ont.; sire Cadet (imp.) —15—; dam —116— County Belle (imp.) by Wildfire (1224).

FOAL OF 1904.

1st. —268— Miss Saxon, strawberry roan, foaled 1904; bred and exhibited by H. N. Crossley, Rosseau, Ont.; sire Saxon —97—; dam —132— Peerless by Rosseau Performer (imp.) —34—.
2nd. Sir Wilfrid —222— brown, hind legs white; foaled May 15, 1904; bred and exhibited by R. Beith, Bowmanville, Ont.; sire Smylett Performer (imp.) —164—; dam —105— Lady Brookfield by Cadet (imp.) —15—.
3rd. —269— Waverley Enchantress, bay, few white hairs on outside of hind foot; foaled March 28, 1904; bred and exhibited by R. Beith, Bowmanville, Ont.; sire Smylett Performer (imp.) —104—; dam —193— Canadian Queen by Squire Rickell —74—.

BEST MARE, ANY AGE.

1st. —236— Priscilla, chestnut, stripe in face; foaled May 23, 1899; bred by Rawlinson Bros., Calgary, Alta.; exhibited by R. Beith, Bowmanville, Ont.; sire Robin Adair 2nd (imp.) —63—; dam —171— Dorothy.

BEST HACKNEY OR PONY MARE, FILLY OR FILLY FOAL.

1st. —262— Blamire Princess (imp.), chestnut, face and fetlocks white; foaled 1900; bred by J. Thomas, Erringham, Eng.; exhibited by R. Beith, Bowmanville, Ont.; sire Prince Henry 3rd (575); dam (12130) Miss Everilda by Astonishment 2nd (3422).

BEST HACKNEY OR PONY STALLION, ENTIRE COLT OR COLT FOAL.

1st. St. David (imp.) —216—; exhibited by R. Beith, Bowmanville, Ont.

BEST MARE OR GELDING EXHIBITED IN SINGLE HARNESS.

1st. Derby King, b. g., sired by Hillhurst Sensation —58—; exhibited by A. Yeager, Simcoe, Ont.

CLYDESDALE HORSE ASSOCIATION.

ANNUAL MEETING.

The nineteenth annual meeting of this Association was held at Grand's Repository, Toronto, February 1st, 1905, 8 p.m., President William Smith in the chair.

On motion of Col. McGillivray, seconded by Jas. Henderson, the minutes of the last annual meeting were taken as read.

ANNUAL REPORT OF THE SECRETARY-TREASURER.

We have recorded 1,101 pedigrees and 792 transfers and Scotch pedigrees, against, in 1903, 1,120 pedigrees and 661 transfers, showing there has not been any material change; still an increase of $77.50, which is satisfactory. A great number of these registrations are for imported stock—more than ever before, and of a better quality.

Your attention is called to the new certificates being issued, on which is printed an extract from the Dominion Live Stock Record Incorporation Act. The Association was incorporated under the Dominion Live Stock Record Act in January, 1901, and on all certificates, transfers and publications issued by this Association now appears the following: "Incorporated under the Act respecting the incorporation of Live Stock Record Associations at the Department of Agriculture, Ottawa," and on the official stamp of the Association the following has been inserted: "Incorporated under the Dominion Live Stock Record Act." This is in accordance with the bill passed by the Dominion Government on June 14th, 1900.

The membership roll is very satisfactory, 427 having paid for 1904, against 364 for 1903, or an increase of 63; this is very satisfactory.

Volume 13, which I am sorry to say is not yet completed, but will be very soon, contains the pedigrees of 705 stallions and 1,503 mares, or a total of 2,208, and will make a good-sized volume and will be sent to members for 1904. Quite a number of registrations have been taken for Vol. 14.

Clydesdale interests continue to flourish, notwithstanding that we are shut out from the American market, and have to find our markets elsewhere. There is a splendid demand in the older settled Provinces for good stallions, while Manitoba and the Territories buy freely and pay good prices.

We have been more than usually liberal in our grants for the last year —$700 to the Spring Show in Toronto, $400 to the Central Stallion Show at Ottawa, $300 to the Dominion Exhibition at Winnipeg, $100 to the National Exhibition at Toronto, and $61 for cups presented at different shows, making a total of $1,561 paid for exhibition purposes, thus leaving our cash balance less than last year.

Importations have this year been numerous, and the stallions brought out by the Graham Bros., Claremont; Smith & Richardson, Columbus; T. H. Hassard, Millbrook; O. Sorby, Guelph; J. A. Turner, Calgary, Alta.; Robert Ness, Howick, Que.; J. R. Stewart, Howick, Que.; J. B. Hogate, Sarnia, and several others have been of much better quality than heretofore. Another feature of 1904 has been the importation of young fillies, to be sold by auction. The first consignment, consisting of forty-nine fillies, was sent over by D. H. Grand, of Liverpool, England, and sold at fair prices at the

Repository. The second consignment was imported by Geo. Isaac, of Cobourg. There were fourteen fillies in the lot. They were also sold at the Repository and realized good prices. The third consignment came from the Graham Bros., Claremont, with fifty fillies, which were also sold at the Repository. The fourth lot was contributed by T. H. Hassard, of Millbrook, there being thirty-five in this lot, and they were sold at the Repository. The fifth lot was imported by W. D. Flatt, of Hamilton, forty-nine fillies, and they were sold at Hamilton. There were 168 sold in this way at advantageous terms for the farmers. They were all registered animals of the right type. In a few years we should reap the benefit of the public spirit shown by these gentlemen, and we hope if more are imported by these gentlemen that more remunerative prices will be obtained next time. These importations, when they commence breeding, will certainly add materially to our Stud Book and to the general welfare of our Clydesdale Association.

The delegates appointed at the last annual meeting to attend the National Live Stock Association convention at Ottawa were: William Smith, Columbus; Robert Miller, Stouffville; Peter Christie, M.P., Manchester, and John Bright, Myrtle. They will, no doubt, give you a verbal report of the proceedings.

FINANCIAL STATEMENT FOR YEAR ENDING DEC. 31ST, 1904.

Receipts.

1904.				
Jan. 1.	To balance from 1903		$859 33	
Dec. 31.	To 10 vols. sold at $2		20 00	
	427 members at $2		854 00	
	Registration fees		1,624 50	
				$3,357 83

Expenditure.

1904.				
Dec. 31.	Grant to Spring Stallion Show	$700 00		
	" Central Stallion Show	400 00		
	" Winnipeg Stallion Show	300 00		
	" Industrial Exhibition	100 00		
	" Cups for prizes	61 00		
			$1,561 00	
	Printing Clyde Book, on account	$500 00		
	Binding 12 vols.	9 00		
	2 old volumes bought	3 00		
			512 00	
	Book case, $8; carpenter work, $3.25; share typewriter, $15		26 25	
	Auditor and stenographer		17 00	
	Postage		167 13	
	Stationery and printing		65 30	
	Telegrams and sundries		1 61	
	Committee and delegation expenses		191 75	
	Commission on 1,101 peds. at 35c.	$385 35		
	Commission on 792 trans. at 15c.	118 80		
			504 15	
	Balance on hand		311 64	
				$3,357 83

The above statement is correct and in accordance with the books of the Clydesdale Horse Association.

Henry Wade,
Secretary-Treasurer.

Chas. F. Complin,
Auditor.

Toronto, Ont., Jany. 12th, 1905.

Upon motion, the Secretary-Treasurer's report was adopted.

PRESIDENT'S ADDRESS.

By William Smith, Columbus.

Last year I said that we were, as it were, at the parting of the ways. I pointed out the fact that we were on the verge of having a gathering in the city of Ottawa, and one of the most important gatherings of stockmen which I believe has ever been brought together in the Dominion. Not only was the gathering an important one, but the questions which came before them were of a most interesting nature, and from first to last, I may say to you, they were discussed in such a way that no one could go away but say after all they had accomplished some good to the great stock interests of this country. I knew then, as I know to-day, that there were very many differences of opinion, but there appeared to me then, as there appears to me now, a strong desire that we should somewhat change our mode of procedure over the last ten, fifteen, or I may say, twenty-five years. I stated then that we could not but look back upon the efforts of the men who had done so much to bring our records to the present high state. We were willing to give them every credit; but I believed that the day had come when we had to make a change. Twelve months, or nearly so, elapsed since I addressed an audience on this question, and my opinion is stronger to-night than it was when I spoke last year. I am speaking to you to-night as Clydesdale men, and as one who is fully interested in the breed and who believes it will be to your advantage in every possible way and will be advantageous to the people of this country; and taking that view, I cannot help but congratulate you all on the numbers we have here to-night. It shows without a doubt that you are taking an interest to-day in the Clydesdale breed that you never took before. Well now, holding that view, taking that view, I preface my remarks in the way that I have done. In the course of a few weeks we will meet as we met last year, in Ottawa, and I have no hesitation whatever in saying, so far as I am concerned, that no matter what the future may have for any of us, it does make a great deal of difference to the interests we are discussing to-night what we shall adopt at this meeting. It has appeared to me for many a long day that we were proceeding on wrong lines: and whilst I was willing to give the men all the credit possible for the work they had done, I believe the time has come when we are compelled to make a change;—that is, that our records should no longer be of a Provincial nature. I have been met with the statement, "Are you not making a mistake, when the Liberal party is going out of power in the Province of Ontario, and are you not playing into the hands of Ottawa, or our opponents?" I say it makes no difference to me who has been in power in the Province of Ontario during the past number of years, or who has been in power at Ottawa: the question that comes to my mind is, what is going to be best for the great Clydesdale interests of this country? It appears to me that at an early date we will be compelled to nationalize the records of the Clydesdale Association. Now, taking that view of it, if I did anything last year and can do anything this year, it will be on these lines. I have a great deal of sympathy and a great deal of feeling with the men who have to change their whole lifetime, if a change should take place; but I feel that the time has come that no man can stand in the way of progress. What is our position with the railways to-day? When I spoke a year ago it was with little fear or little trembling that we would occupy the position that we had to-day; but you know the efforts made by Mr. Hodson, the Live Stock Commissioner of this country, to get favorable rates. We are just on the eve of having all that blocked on the first of June unless something can be done. Unless

these records can be nationalized all that is to be stopped. Now, this is a matter of dollars and cents to me or you. Of course to those who may only have one hog, bullock, or horse to ship, it may make but little difference; but whilst you have enjoyed these privileges for the past few years, the moment this takes place we are back in the old rut again.

I am not one who is anxious we should deal with our neighbors to the South as they deal with us; but I am prepared to say we should look at our interests, no matter who it may hit, no matter who may be hurt. Now this is a most important question, and there has never been a more important Clydesdale meeting than here to-night. You have it in your hands to say whether the future of the horse trade shall be bright or whether it shall be dark. Looking over this large assembly, it appears to me that I cannot impress upon you enough the importance of nationalizing the records so far as the Clydesdale is concerned. You say, "We want to have the same control over it in Ottawa as we have here in Toronto." I say whether it goes to Ottawa or any other place, the Clydesdale people will just have as much control over their interests as they ever had in the past.

We are forced to the position that these records must be nationalized in such a way that we can control our interests either with ourselves or with any interests outside of ourselves.

You have heard the Secretary's statement here to-night. It is perhaps not as favorable as you may have heard before. I do not say that it is, but at all events it is a fairly favorable one. It points out that the people of this Province and the Dominion are taking a lively interest in pushing forward this great breed of horses. We are, as far as we are financially concerned, in a fair position. We have dealt in a most liberal manner with those outside of Ontario, and we are prepared to do that, as far as I can view it, for all time to come.

I wish to thank you, in closing, for having so often honored me with office since I joined the Association over twenty years ago.

Robert Miller: The ground has been so thoroughly covered by our President and Mr. Hodson that they have left very little room for me to say anything on the subject. However, we are making great endeavors to find a market in some foreign countries, and in some portions of this great continent. We are making an endeavor to cultivate a market for some of our stock in Argentina, and that is, as most of you know, the best market on the face of the earth if it can be properly reached. We are also to a certain extent clutivating a market with the great Republic of Mexico. We have been more successful than Great Britain in reaching Mexico with our live stock. We have now the good-will of the best live stock men in that republic, and I believe before very long it will be one of the best markets in the world. Now if we want to reach them, then we must have good certificates of registry, that are absolutely reliable; and we must put ourselves in a position to nationalize our record and have the Dominion Government at our backs. And when these countries know that our certificates have the seal of the Dominion Government they will feel safe in buying our animals. I believe that is the only point that could be made further, in regard to nationalization of our records. I say it has my approval, and I shall do everything I can to bring about nationalization. I do not think there ever existed, or dare exist, a Government that would attempt to control the affairs of these Associations; therefore, I feel that we are quite safe in placing our headquarters at Ottawa or any other point we care to place them.

Hon. John Dryden: I want to say I entirely agree with the proposition given us by Mr. Hodson. The advantages of what I call consolidation of

the records of the various associations into one record for each breed are so perfectly palpable and plain that no person can help but see it is for the best interests of the stockmen and stock associations. It would be folly for the various Provinces to separate from each other and start separate records. It is presumptuous; I have always maintained that. Last year I wanted to warn the breeders on two points. First, as to the necessity of the breeders who were interested in the breed controlling the principles which govern the record; and while Mr. Miller makes the statement he does, it is just as well that the Department of Agriculture at Ottawa and the Department of Agriculture of Ontario know just what we believe. The men who invest their money in these breeds are the men who ought to be consulted as to the principles that should govern the record.

And the second thing which I warned the breeders against last year was not to take any course, not to do anything without the organization of what I call breed associations. For instance, take the Shorthorn Breeders' Association. If any course was taken whereby the Government would undertake to do the recording of these animals and leave you without a practical interest in the Association, I think that would be a decided injury to the Shorthorn breed of cattle. I think it is of great advantage for the breeders to combine themselves together, to put up their money in membership fees and registration fees and have control of their moneys. If these two things can be guarded, then there is no reason why any of us should stand in the way of what Mr. Hodson calls nationalization of the records.

I can see the force of what Mr. Miller says. The moment you undertake to trade with outsiders, or the United States, or any other countries, you need to have the backing of one Association; you need to have your whole interests combined in one common, central organization; and let me say to the gentlemen here interested in horses, or whatever breed of live stock it may be, if you ever want the influence of the railways or political bodies, you want to stand together as one man.

Mr. Miller no doubt remembers well when we went together years ago to represent the Sheep Breeders' Association, and ask the railway authorities to help us. They smiled pleasantly and said "Good day." But when the railways understand you have a large organization, and realize you are determined to get what you ask, then they are prepared to listen to you. And I may say this, I have not any fear at all but the railways will accede to what you want in regard to these cheap rates if you organize in the manner which Mr. Hodson suggests.

At this juncture Mr. McGillivray asked if the Provincial grants were likely to be continued providing the offices were moved to Ottawa, and Mr. Dryden said if he were in the position he had been it would have made no difference. He hoped the Province of Ontario would not drop all these grants because they had been nationalized, as he did not think it made any difference to the majority where the headquarters were, and when the scheme of nationalization was properly worked out it might be advisable to have some branch offices in the different Provinces if the breeders thought it best to do so. He was of the opinion it was decidedly in the interests of everybody to have national records if the points were guarded which he had suggested.

Mr. Peter Talbot, President Territorial Live Stock Associations: You are dealing with a question which is of tremendous importance, and in view of the splendid reasons which have been given by the gentlemen who have spoken in regard to the nationalization of our record system, it seems almost unnecessary for me to speak further on the subject. However, there is just

one other reason which I wish to advance, and it is this: The almost boundless plains of the West are being rapidly settled. We have there settlers from all portions of the world, not only from other countries in the world, but also from nearly all the States in the American Union. Now we want to foster in that Western country a national feeling. We want to make good, loyal, patriotic Canadians of all these people, and we want you to give us all the help you can in that direction. Our Stock Associations in the Territories are anxious about this matter; in fact, if something is not done in this direction I fear they will start records of their own. They have already started Sheep and Swine Breeders' Associations, and they are recording there, and certificates being issued from Calgary, and it has been suggested also they commence records for cattle and horses. Now, this something not desirable, and it can be prevented by nationalizing all the Associations, making one large Association for each breed.

Mr. JOHN A. MCGILLIVRAY said he was very much in favor of the proposition as presented by the Dominion Live Stock Commissioner.

Moved by THOS. A. GRAHAM, seconded by ROBERT BEITH, "That the Canadian Clydesdale Breeders' Association at once proceed to nationalize their Association and Records. That the office be transferred from Toronto to Ottawa. That F. M. Wade be Registrar. That Thos. Graham, Robert Beith, William Smith, Robert Miller, O. Sorby and John Davidson be a committee to meet with the Live Stock Commissioner to complete arrangements forthwith." Carried.

The matter of so many scrub animals coming into the country free of duty without being registered in the Canadian records was discussed, and it was the general opinion of the meeting they should not be admitted duty free unless recorded in the Canadian records.

On motion of ROBERT MILLER, seconded by ROBERT BEITH, it was resolved: "That the Canadian Government be and is hereby asked to take steps to regulate the further importation of horses, cattle, sheep, and swine;

"And it is further resolved: That animals for breeding purposes be admitted free of duty when pure-bred, registered in the authorized book of records of the Dominion of Canada, or of the country in which the breed originated, and when owned by a bona fide resident of the Dominion."

Mr. JOHN A. MCGILLIVRAY: I move that the Association tender the Hon. John Dryden a vote of thanks for the great work he has done in the interests of agriculture in the Province of Ontario. I think the work he has done has been a life work, and a work perhaps no other man could have done as well in the years that have gone.

The motion was seconded by PETER CHRISTIE, M.P., and carried unanimously.

The meeting then adjourned.

OFFICERS FOR 1905.

Honorary President ..... F. W. Hodson, Dominion Live Stock Commissioner, Ottawa.
President ..... William Smith, Columbus.
First Vice-President ..... Thos. Graham, Claremont.

VICE-PRESIDENTS FOR THE PROVINCES:

Ontario ..... Robert Miller, Stouffville.
Manitoba ..... J. A. S. McMillan, Brandon, Man.
Alberta ..... John A. Turner, Calgary, Alta.
Quebec ..... Robert Ness, Howick, Que.
Assiniboia ..... A. Mutch, Lumsden, Assa.
British Columbia ..... D. Tolmie, Victoria.
Maritime Provinces ..... Hon. T. R. Black, Amherst, N.S.

DIRECTORS:

H. G. Boag, Churchill.
Peter Christie, Manchester.
John Vipond, Brooklin.
Jas. Torrance, Markham.
A. G. Gormley, Unionville.
Robert Beith, Bowmanville.
John Bright, Myrtle.

DELEGATES TO FAIRS AND ASSOCIATIONS:

Industrial Exhibition: Robert Beith and William Smith.
Ottawa Exhibition: Peter Christie, Manchester, and Geo. Gray, Newcastle.
Western Fair: A. Innes, Clinton; and Jas. Henderson, Belton.
Quebec and Sherbrooke: R. Ness and Geo. Stewart, Howick, Que.
Winnipeg Exhibition: H. Nichol, Brandon, Man.; and Geo. Greig, Winnipeg, Man.
Horse Breeders' Association: Peter Christie and Fred. Richardson, Columbus.

CLYDESDALE MEMBERS, 1905.

Alton, A. P. .....Appleby.
Aitchison, And. .....Guelph.
Aiman, And. .....Dunbarton.
Arbogast, John .....Sebringville.
Armstrong, Geo. .....Speedside.
Attrill, E. C. .....Goderich.
Allen, J. C. .....Brooklin.
Armstrong, W. D. ....Lameroux.
Bagshaw, W. A. .....Uxbridge.
Baker & Sons, S. .....Lennoxville.
Balsdon, J. J. .....Markham.
Barber, H. M. .....Gatineau, Que.
Banks, Lorenzo .....Pickering.
Barrister, H. .....Davisburg, Alta.
Barbour, Wallace ....Brougham.
Batty, W. S. .....Brooklin.
Bawden & McDonell ..Exeter.
Bean, Chas. & John ..Brinsley.
Beatty, John .....Leadbury.
Beatty, Jas. .....Kirkton.
Beith, Robert .....Bowmanville.
Bell, M. & J. .....Athelstane, Que.
Bell, Wm. .....Avonton.
Bell, R. A. .....Britannia Bay.
Bennett, C. R. .....Barrie.
Bennette, Chas. R. ....Russelton.
Bennett, D. .....Dutton.
Benson, S. .....Neepawa, Man.
Bertram, David .....Malcolm.
Black, D. A. .....Burgoyne.
Black, Wm. .....Hayfield, Man.
Boag, A. W. .....Queensville.
Boag, H. G. .....Barrie.
Bock, Wm. .....New Dundee.
Boag, John A. .....Ravenshoe.
Bone, John .....Concord.
Bonar, John .....Forrest Station, Man.
Botham, Geo. .....Bradford.
Bower, T. A. .....Concord.
Boyle, Wesley .....Kinbough.
Birrell, David .....Greenwood.
Brady, Thos. .....Chatham.
Bredt, P. H. .....Regina, Assa.
Bradley, J. .....Port Perry.
Brazer, A. .....Medina.
Bright, John .....Myrtle.
Bright, Wm. .....Raglan.
Brien, Wm. .....Windsor Fork, N.S.
Brewster, Wm. .....McIntyre.
Bryce, W. H. .....Arcola, Assa.
Bull Bros. .....Yorkton, Assa.
Bunker, S. C. .....Pickering.
Burns, David .....Brooklin.
Burnett, J. .....Napinka, Man.
Burnett, Jos. .....Elgin Mills.
Burroughs W. T. .....Hazledean.
Butler, W. E. .....Ingersoll.
Byerly, R. Reid .....Cook's Creek, Man.
Ball, John .....Ayton.
Brown, Thos. R. .....Regina, Assa.
Brownlee, R. T. .....Hemmingford, Que.
Burgess, Wm. .....Wallaceburg.
Brodie, G. A. .....Bethesda.
Beebe, M. C. .....Owen Sound.
Brooks, Jas. E. .....Mitchell.
Brown, F. L. .....Myrtle.
Bingham, J. B. .....Bloomingdale.
Bower, Jas. ..... Claremont.
Baker, W. E. .....Demorestville.
Boyles, J. M. .....Fort Qu'Appelle.
Barber, H. M. .....Gatineau Point.
Brock, Geo. .....Taunton.
Butt, Eph. ..... Clinton.
Burtchall, D. .....Fenelon Falls.
Brooks, Thos. .....Fairville, Assa.
Boynton & Son, P. W. Dollar.
Calder, Chas. .....Brooklin.
Cameron, A. ..... Annan.
Cameron, Alex. .....Teston.
Cameron, Alex. .....Oshawa.
Cameron, A. E. .....Peaverton.
Cameron, D. .....Gilbert Plains, Man.
Cameron, A. ..... Oak Lake, Man.
Cameron, Colin .....Etobicoke.
Campbell Bros. .....Walker's.
Campbell, Glen. .....Gilbert Plains, Man.
Campbell, Jas. R. ....Palmerston.
Campbell & Son., Jos. Janetville.
Canning, Robt. .....Hagerman.
Cargill & Sons, H. ....Cargill.
Carlyle, S. G. .....Chesterville.
Carstairs, D. .....Romanton.
Cavers, Walter ..... Ormistown, Que.
Chapman Bros. ..... Kirby.
Charlton, E. W. .... Duncrief.
Charlton, Geo. ..... Duncrief.
Chatterson, C. H. .. Oshawa.
Christie, Peter ..... Manchester.
Clarke, J. G. ..... Ottawa.
Clarke, Duncan .... Crowfoot, Alta.
Clarke, Jas. ..... Crowfoot, Alta.
Clarke, John ..... Crowfoot, Alta.
Clarke, John ..... Gleichen, Alta.
Clarke, J. L. ..... Norval.
Clifton, A. ..... Thornhill, Man.
Cockburn, Geo. ..... Baltimore.
Cochrane, Geo. ..... Enfield.
Colquhoun, Wm. ..... Mitchell.
Courcey, John ..... Lucan.
Courcey, T. & C. H. .. Lucan.
Cockburn, W. L. ..... Cobourg.
Cowan, J. D. ..... Drumbo.

CLYDESDALE MEMBERS, 1905.—*Continued.*

Cowie, John W. .....Markham.
Coyte & Son, Thos. ..Port Hope.
Crawford, Robert ....Oro Station.
Crawford, Robert ....Carlingford.
Crawford, Thomas ....Balsover.
Creery, Jonas E. .....Winchelsea.
Conn, H. S. .....Ottawa.
Campbell, T. A. ...,. Smith's Falls.
Clarke, Robert .....Carlingford.
Canadian Land and Ranche Co. .....Crane Lake.
Campbell, John .....Harriston.
Clarke, Robt. .....64 York St., Ottawa.
Colins, Geo. .....Westbank, B.C.
Cook, Jas. .....Myrtle.
Cotterell, G. R. .....Milton.
Crysdale, C. H. .....Oshawa.
Cowie, Geo. .....Markham.
Cameron, J. A. .....Oak Lake, Man.
Comfort, Frank .....Shedden.
Creighton, John .....Okotoks, Alta.
Chadburn, John .....Kenton, Man.
Campbell, Syl. .....Le Roy.
Dalgety Bros. .....London.
Davidson, John .....Ashburn.
Davidson, Geo. .....Cherrywood.
Davidson, G. A. M. ..Cherrywood.
Davidson, J. F. .....Wingham.
Davies, Robt. .....Toronto.
Davies, G. T. .....Copland Brewing Co.
Davies, Jas. T. .....Aurora.
Dentonia Park Farm..Coleman.
Devitt & Sons, Isaac ..Freeman.
Dickson, R. .....Guelph.
Dinwoody, Wm. M. ....Cookstown.
Doherty, Alex. .....Ellesmere.
Doherty, Wm. .....Ellesmere.
Douglas, D., Lake Cattle Co. .....Douglas Lake, B.C.
Dudgeon, Jas. .....Shadeland, Man.
Duff, Robert .....Myrtle.
Dunkeld Bros. .....Atna.
Dunlop, C. .....Rideau View.
Dunrea Horse Breeders' Association ....Dunrea, Man.
Dyer, W. D. .....Columbus.
Farroch, A. G. .....Cotswold.
Davies, R. W. .....Copland Brewery, City.
Duff, T. .....Myrtle.
Duncan, Wm. .....Stroud.
Dawson, Adam .....Cannington.
Dickson Bros. ..... Atwood.
Dingman, Wm. .....Balsam.
Davey, John .....Leskard.
Eady, A. G. .....Vars.
Eady, W. T. .....Crowley, Assa.
Edwards & Co., W. C.Rockland.
Elder, Tully .....Brandon, Man.
Elliott, Robert .....Neepawa, Man.
Edwards, Ira .....Cannington.
Emboden, J. D. ..... Bredenbery, Sas.
Evans, Jas. .....Claremont.
Everett, Geo. .....Scarboro'.
Ewans, R. .....Chatsworth.
Ezard, Geo. .....Castlemore.
Elder, P. M. .....Kelso, Que.
Empingham, J. T. ....Ringwood.
Fitzpatrick, W. L. ....Fairfax, Man.
Fleming, Robert .....Poole.
Forgie, John .....Claremont.
Forsyth, G. M. .....Claremont.
Frazer, Wm. .....Springbank, Alta.
Fulford, J. D. .....Mather, Man.
Fulton & Son, John ..Bowmanville.
Flatt, W. D. .....Hamilton.
Fallis, Russell .....Carberry, Man.
Galbraith & Sons, Alex.Janesville, Wis.
Gardhouse, J. M. ....Weston.
Gardhouse, C. S. .....Humber.
Gaughan, John .....Bechan.
Gilchrist, Jas. .....Shellmouth, Man.
Gleason, J. .....Markham.
Goddard, G. E. .....Cochrane, Alta.
Gordon, M. J. .....Crowfoot, Alta.
Gormley, A. G. .....Unionville.
Graham, And. .....Pomeroy, Man.
Graham, John .....Carberry, Man.
Graham, Robert .....Toronto.
Graham, T. A. .....Claremont.
Graham, Wm. M. ....Claremont.
Graham, Nelson .....Markham.
Grandy, R. C. .....Springville.
Gray, George .....Newcastle.
Greeg, Thos. .....Claremont.
Greer, Wm. .....Ormistown, Que.
Greenlees, Hugh .....Bowmanville.
Groat, Chas. .....Brooklin.
Grove, Menom .....Markham.
Gunn & Son, D. .....Beaverton.
Grierson, Allan ..... Dunrobin.
Gooderham Bros. .....Wexford.
Gibson, C. B. .....Arthur.
Graham, John A. .....Musgrove.
Gould, J. B. .....Markham.
Gordon, Jas. .....Cannington.
Gray, John .....Atwood.
Gibson, Rich. ..... Delaware.
Hadden & Sons, Geo. ..Wick.
Hahn Bros. .....Hawksville.
Hall, David .....Pickering.
Hall, Thos. .....Columbus.
Hall, Michael .....Wishart, Assa.
Hamilton, John .....Ravenshoe.
Hand, T. A. .....Hazledean.
Hardy, Wellington ....Howland, Man.
Hartin, C. .....Stittsville.
Hassard, T. H. .....Millbrook.
Hay, John .....Hannah, N.Dak., U.S.A.
Hay, Wm. .....Tara.
Hawthorne, John ....Simcoe.
Hemmingway, M. R. ..Unionville.
Henderson, Jas. .....Belton.
Henderson, Geo. .....Keady.
Hendrie, Wm., Jr. ....Hamilton.
Herold, P., V.S. .....Tavistock.
Hewson, Matthew ....Tullamore.
Hill, W. G. .....Newmarket.
Hill, John .....Wellesley.
Hill, D. .....Staffa.
Hislop, Jas. .....Stratford.
Hodgkinson & Tisdale..Beaverton.
Hodson, F. W. .....Ottawa.
Hogate, J. B. .....Sarnia.
Hosken, A. E. .....Cobourg.
Hood, T. .....Milliken.
Hood, Thos. .....Bradford.
Hooey, John .....Cadmus.
Hoover, J. H. .....Ringwood.
Howard, J. L. .....Sutton West.
Howard, W. J. .....Dollar.
Howden & Son, J. D. ..Whitby.
Hummerson, Ira .....Embro.
Hunter, J. C. .....Danforth.
Hunter, W. J. .....Snelgrove.
Hepburn, Wm. .....Columbus.
Howden, W. G. .....Columbus.
Harbottle, Capt. C. G.Toronto.
Hooey, Walter .....Rathwell, Man.
Harris, R. N. ..... Gatineau Point, Que.
Hartman, L. L. .....Aurora.
Howitt, Jas. .....Claremont
Howden, T. .....Milton West.
Hulse, Henry .....Bradford.
Hutchinson, Basil ....Condie, Assa.
Innes, Alex. .....Clinton.
Innes, J. W. .....Woodstock.

CLYDESDALE MEMBERS, 1905.—*Continued.*

Isaac, Alex. .....Cobourg.
Isaac, Geo. .....Cobourg.
Ismond, W. H. .....Kenlis, Assa.
Ivy, John .....Jarvis.
Jackson, D. M. .....Port Perry.
Jackson & Son, Geo. ..Downsview.
Jackson, Jas. .....Weston.
Jackson, Richard .....Alma.
James, D. W. .....Perch.
Jamieson, And. .....Streetsville.
Jewell, W. E. .....Bowmanville.
Jobson, J. .....Richview.
Johnston, A. .....Greenwood.
Jounston, R. G. .....Gormley.
Joyce, Wm. .....Beaverton.
Jones, Jas. .....Calgary, Alta.
Jamieson, John .....Laurier.
Kennedy, Wm. .....Embro.
Kersey, Wm. .....Coleraine.
King, Frank .....Fingerboard.
Kelland, John .....Kirkton.
Kilpatrick, Geo. .....Prince Albert.
Laing, Thos. .....Eburn, B.C.
Langdon, Harry L. ....Hazledean.
Langhton, Josh .....Sboal Lake, Man.
Laurie, John .....Malvern.
Laviolette, Jos. .....Virginia.
Laycock & Son, Mrs. W.Calgary, Alta.
Leonard, Jas. .....Schomberg.
Leask, Jas. .....Taunton.
Lepard, D. W. .....Zephyr.
Lindsay, Jas. .....Fergus.
Linstead, W. .....Queensville.
Little, D. .....Portage la Prairie, Man.
Lougheed, H. P. .....Heathcote.
Little, John .....High River, Atta.
Luke, L. R. .....Oshawa.
Lahmer, Alf. .....Edgeley.
Little & Son, Neil ....Mayfield.
Luke, J. E. .....Columbus.
Lewis, A. .....Ringwood.
Lundy, E. E. .....Newmarket.
Lucas, Wm. .....Coleman.
Langford, H. T. .....Raglan.
Lynd, Robt. .....Dunkerron.
Leask, Alex. .....Greenbank.
McLean, Walter .....Columbus.
McPhail, Neil .....Sonya.
McKinnon, D. .....Comingsby.
McGerrigle, W. J. ....Ormistown, Que.
McLain, Wm. .....Dinwoody, Alta.
Major Bros. .....Whitevale.
Marshall, R. .....Flora.
Martin, John E. .....Wassana, Assa.
Maxwell, Wm. .....Moose Jaw, Assa.
Maxwell, Thos. .....Langley, B.C.
Medland, John .....Brooklin.
Menzies, J. A. .....Wingham.
Millard, J. H. .....Altona.
Miller & Sons, John ..Brougham.
Miller, Robert .....Stouffville
Milne, Jas. A. .....Spiers.
Milroy & Son, J. ....Cedar Grove.
Moffatt, Jas. .....Teeswater.
Moore, Geo. .....Waterloo.
Moore, Jas. .....Brooklin.
Moore, Wm. .....Burk's Falls.
More, W. R. .....Almonte.
Morris, E. J. C. .....Stouffville.
Morrison, J. D. .....Argyle.
Mossop, Wm. .....St Mary's.
Mount Elgin Ind. Inst.Muncey.
Mountjoy, F. .....Columbus.
Mountjoy, John .....Foley.
Mowat & Babe .....Shelbourne.
Murray, Walter .....Avonton.
Mutch, A. & G. .....Lumsden, Assa.
Myles, C. E. .....Bedford Park.
Meharey, Wm. .....Russell.
Myles, J. A. .....Heathcote.
Meikle, Jas. .....Rocanville, Assa.
Madaford Bros. .....Whitby.
Mercer, Thos. .....Markdale.
Marshall, J. H. .....Stewart.
Montgomery, G. B. ....Drayton.
Miller, A. S. .....Markham.
Millard, A. .....Altona.
Miller, John .....Balsam.
Meyers, Jacob S. .....St Clement's.
Mitchell, J. B. .....Whitby.
Michie, Geo. .....Oak Lake, Man.
Miller, Hiram .....Mooresville.
Middleton, Geo. & W..Claremont.
Mitchell, J. & J. .....Tormore.
McAvoy, T. C. .....Balsam.
McBeth, Donald .....Oak Lake, Man.
McBrine, Robt. .....Chatsworth.
McCaig, Alex. .....Aberfoyle.
McCaig, Hector .....Aberfoyle.
McCallum, Archie ... King.
McCartney, G. .....Emerson, Man.
McDougal, A. .....Tatehurst.
McDermott, Wm. .....Living Springs.
McEachren, Robt. ... Argyle.
McEachren, P. R. ... Eldon.
McEwen, D. .....D Wittville, Que.
McFarlane, D. A. ... Claremont.
McFarlane, John M. . Moose Jaw, Assa.
McGeachey, J. & R. . Coleraine.
McGerrigle, S. .....Ormistown, Que.
McGill, Wm. .....Yelverton.
McGillivray, J. A. ... Bedford Park.
McGillivray, Theo. A. . Whitby.
McGregor, Alex. .....Uxbridge.
McGugan, A. D. ..... Rodney.
McIntosh, Wm. ..... Burgoyne.
McKay, Wm. ..... Claremont.
McKenzie, M. W. .... Embro.
McKinnon & Sons, D. . Hillsburg.
McLean, Samuel ..... Franklin, Man.
McLatchie, Isaac H. . Gatineau Point, Que.
McMahon, T. H. .....Okotoks, Alta.
McMichael, T. ..... Seaforth.
McMillan, J. A. S. .... Brandon, Man.
McPherson, Alf. ..... Unionville.
McRae & Son, Jas. ... Cherrywood.
McLeod, H. P. ..... Okotoks, Alta.
McMichael, Thos. ..... South Qu'Appelle.
McLenahan, Robt. H.. Lenore, Man.
Ness, Robert ..... Howick, Que.
Newman, Robert ..... Woodford.
Nichol, Henry ..... Brandon, Man.
Nichol, Geo. ..... Wanburn.
Nix, Jas. ..... Nortonville.
Noble, Jas. ..... 70 Howard St., Toronto.
Norton, W. H. ..... Brougham.
Norris, Jas. ..... Cromarty.
Ness, A. J. ..... Howick, Que.
Ogle, R. ..... Blytheswood.
O Leary, John ..... Mayfield.
Oliver, John ..... Duncrief.
O Neill, J. D. ..... London.
Osborne, D. ..... Fleming, Assa.
Omerod, R. ..... Brown's Corners.
Paton, Hugh ..... Montreal, Que.
Paton, Jas. ..... Swinton Park.
Patterson Bros. ..... Millbrook.
Paling, R. & C. ..... North Seneca.
Partridge, Geo. H. .. Saltcoats, Assa.
Peel, John ..... Chatham.
Perdue, T. H. ..... Souris, Man.
Petch, Geo. W. ..... Aurora.
Pepper, Geo. ..... Toronto.
Peterson, A. ..... Hawksville.
Pringle, Alex. ..... Unionville.
Pringle, H. L. ..... Whitby.

CLYDESDALE MEMBERS, 1905.—*Concluded.*

Proctor, J. A. .....Beaverton.
Prowse, S. J. .....Ingersoll.
Puckrin, Thos. .....Audley.
Pugh, D. E. .....Claremont.
Pugh, W. D. .....Claremont.
Provincial Stock FarmTruro, N.S.
Pearson, W. T. .....Brown's Corners
Parrott, Wm. .....Columbus.
Pugsley, W. H. .....Richmond Hill.
Pollock, Wm. .....Seagrave.
Patterson, Ed. .....Norwood.
Potts, Oliver .....Simcoe.
Quanty, Arthur .....Langstaff.
Quinlan, John .....Balsam.
Quinlan, A. .....Hogg.
Rankin, J. R. .....Hamiota, Man.
Reevley, Wm. .....Erin.
Renfrew, W. C. .....Ringwood.
Renton, Geo. .....Mt. Wolfe.
Peid, John .....Claremont.
Richardson, Fred .....Columbus.
Richardson, Lou .....Columbus.
Richardson, Jas. .....St. Paul's.
Richardson, Wm. P. .....Columbus.
Riddle, R. .....King.
Robertson, Mrs. Thos. W. .....High River, Alta.
Robertson, J. C. .....Markham.
Robinson, Mrs. J. W. .....St. Mary's.
Rosevear, A. H. .....Cold Springs.
Rogers, Joseph .....Kettleby.
Rolph, Jas. .....Manchester.
Ross, J. C. .....Jarvis.
Ross, T. W. .....Myrtle.
Richards, Jas. .....Pickering.
Robinson, Alfred .....White Rose.
Rundle, Thos. .....Science Hill.
Reid & Co. .....Hintonburg.
Richardson, F. W. .....Billing's Bridge.
Ross, John .....Raglan.
Richardson, R. .....Wexford.
Schafer, Hy. .....Maplewood.
Salter, Roger .....Holland Landing.
Secombe, Richard .....Mona, N.Dak., U.S.
Secord, Angus .....Woburn.
Semple, Hugh .....Hereward.
Shannon Bros. .....Cloverdale, B.C.
Shantz, D. S. .....Didsbury, Alta.
Shattuck, C. J. .....Columbus.
Shattuck, Mrs. W. D. .....Langsdon, Alta.
Spier, F. J. .....Leaskdale.
Shortreed, John .....Walton.
Silver, F. L. .....Unionville.
Sims Bros. .....Thamesford.
Skeinacher, J. .....Mitchell.
Slater, Jonathan .....Buttonville.
Smith, John E. .....Brandon, Man.
Smith, R. B. .....Columbus.
Smith, Wm. .....Columbus.
Smith, Mary Ann .....Yorkton, Assa.
Smith, Neil .....Brampton.
Smith, Peter .....Sebringville.
Sorby, O. .....Guelph.
Spears, J. V. .....Atha.
Spenceley, H. J. .....Box Grove.
Somerville, L. .....Unionville.
Sovereign, G. W. .....Freeman.
Stanley, W. J. .....Pickering.
Staples, J. F. .....Ida.
Stark, John .....Columbus.
Stauffer, W. .....Ringwood.
Steinacher, John .....Sebringville.
Stephens & Son, L. G.Robinson, Ill.
Stephens, R. M. .....Anderson.
Stevenson, D. .....Wawanessa, Man.
Storey, Harvey .....Picton.
Stafford, W. D. .....Renfrew.
Stewart, G. G. .....Howick, Que.
Stewart, John .....Springbank.
Stewart, Peter .....Park Hill.
Stewart, Peter .....Atha.
Sullivan, M. D. .....Down.
Sutton, M. E. .....Roland, Man.
Scharf, John R. .....Hartney, Man.
Stewart, D. F. .....Ailsa Craig.
Sleep, Frank .....Indian Head, Assa.
Symons, E. .....Aylmer, Que.
Scarf, A. .....Cumming's Bridge.
Sims, John .....South March.
Smith, A. G. .....Myrtle.
Smith, Henry .....Belhaven.
Stark, W. J. .....Stouffville.
Simoger, B. .....Whitewood, Assa.
Stonehouse, Robert .....Milliken.
Shier, Ric. .....Cannington.
Shaw, David .....Bolton.
Taylor, Anson .....Blackstock.
Talbot, Peter, M.P. .....Lacombe, Alta.
Tabor, R. H. .....Condie, Assa.
Taylor, Thos. .....Harwich.
Taylor, Jos. .....Elgin, Man.
Thomson, J. B. .....Hamiota, Man.
Torrance, Jas. .....Markham.
Trann, W. H. .....Cedar Grove.
Trick, Rich. .....Unionville.
Turner, John A. .....Calgary, Alta.
Thomson, Purves .....Purves, Man.
Tanner Bros. .....Caledonia.
Thom, Arthur .....Elma.
Thompson, N. .....Orangeville.
Teeson, Jos. E. .....Newtonbrook.
Thompson, Wm. .....Holt.
Van Horne, Sir Wm. C Montreal, Que.
Vasey, H. M. .....Ladner, B.C.
Veal, John .....Beaverton.
Vickery, C. O. .....Port Perry.
Vipond, John .....Brooklin.
Washington, J. G. .....Ninga, Man.
Wagg, Jas. .....Stouffville.
Wagg, Nelson .....Goodwood.
Wagg, Nelson .....Claremont.
Wallace, G. A. .....Ponsonby.
Wallace & Sons, Jas. Granton.
Watson, G. L. .....Clinton, B.C.
Watson, R. .....Wetaskiwin, Alta.
Watson, T. D. .....Caron, Assa.
Watts, R. A. & J. A. .....Salem.
Wells, W. T. .....Temperanceville.
Weir, Alex. .....Saltcoats, Assa.
White, Job .....Ashburn.
Wilkie, Wm. .....Toronto.
Wilkin, W. G. .....Harriston.
Waldbrook, Wm. .....Hagersville.
Wilson, Wm. .....Oshawa.
Wilson, M. S. & T. G. Livingstone, Alta.
Willson, Dr. E. L. .....Marysville, Kan., U.S.
Wishart, John .....Portage la Prairie, Man.
Woodcock, Frank .....Chater, Man.
Woodcock, Jas. .....Newmarket.
Woodley, Wm. .....Dundas.
Wolverton, N. .....Brandon, Man.
Wright, Bryce .....De Winton, Assa.
Wright, Lewis A. .....Salisbury, N.B.
Watson, W. J. .....Bradford.
Webster, John .....Fordyce.
Whitson, R. .....Atha.
Wagg, J. H. .....Goodwood.
Wayling, Rich. .....Brandon.
Whitelaw, A. & W. .....Guelph.
Wilken, Chas. .....Calgary, Alta.
Watson, T. H. .....Sonya.
Yake, D. .....Kintore.
Young, Alex. .....Kintail.
Yake, P. .....Kintore.
Young, W. H. .....Binkham.
Young, R. B. .....Binkham

PRIZE WINNERS IN THE CLYDESDALE CLASS AT THE CANADIAN NATIONAL EXHIBITION, TORONTO, 1904.

STALLION 4 YEARS OLD AND UPWARD.

1st. Royal Baron (imp.) [4722] (11161), bay, face and hind legs white; foaled July 20, 1899; bred by Geo. Bean, West Ballochy, Montrose, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride (9122); dam Royal Queen (13700) by Mount Royal (8065)
2nd. King's Crest (imp.) [4764] (11385), dark bay, white face and legs; foaled 1900; bred by Andrew Clokie, Boghouse, Port William, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire Up to Time (10475); dam Tiara (9500) by Lord Douglas (2691).
3rd Baron Gartley (imp.) [4789], bay, white face, 4 white legs; foaled May 24, 1900; bred by Andrew Dewar, Arnprior, Scot.; exhibited by Smith & Richardson, Columbus, Ont.; sire Casabianca (10523); dam Queen of Arnprior (14189) by Royal Gartly (9844).
4th. The Rejected (imp.) [4800] (11969), black, white blaze on face; fore leg and off hind white, white mark inside of near hind leg; foaled July 25, 1900; bred by Andrew Gemmell, Gainford, Fenwick, Scot.; exhibited by Robt. Ness & Sons, Howick, Que.; sire Ethiopia (5750); dam Lady Carnichan (12806) by Prince of Carnichan (8151).

STALLION, 3 YEARS OLD.

1st. Baron Sterling (imp.) [4723] (11611), black, white face, dark spot on forehead, white legs; foaled May 8, 1901; bred by Wm. Stirling, Balkatry, Ireland; exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride (9122); dam Queen of Branby (14850) by Macgregor (1487).
2nd. Yester (imp.) [4277] (12409), brown, white stripe on face, off hind leg and near hind pastern white; foaled April 10, 1901; bred by Wm. Nicholson, Bombie, Kirkcudbright, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride (9122); dam Kate of Bombie [5644] (13220) by Macgregor (1487).
3rd. Wigtown Life Guard (imp.) [4780] (Vol. 27 S.), brown, ratch, 3 white ankles, off hind ankle little white; foaled June, 1901; bred by A. McLelland, Glenturk, Wigtown, Scot.; exhibited by Dalgety Bros., London, Ont.; sire Labori [4970] (10791); dam Mary of Glénturk [4924] (12545) by Top Knot [3438] (6360).
4th. Royal Dean (imp.) [4792], black, white on face, four white legs; foaled June, 1901; bred by David Jamieson, Roundbrick, Annan, Scot.; exhibited by Smith & Richardson, Columbus, Ont.; sire The Dean (10937); dam Fair Helen (15583) by Lord Lothian (5998).

STALLION, 2 YEARS OLD.

1st. Carlist (imp.) [4791], black, white face, four white legs; foaled May 7, 1902; bred by And. Lowther, Silicroft, Cumberland, Eng.; exhibited by Smith & Richardson, Columbus, Ont.; sire Sir Everist (10917); dam Topsy by Prince of Charlesfield (9979).
2nd. Fairy King (imp.) [4724] (12138), brown, stripe, hind legs white; foaled April 29, 1902; bred by A. & W. Montgomery, Netherall, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride [3067] (9122); dam Fortune (15191) by Macgregor (1487).
3rd. Adam Bede (imp.) [4783] (11992), brown, stripe, near fore and both hind legs white; foaled May 1, 1902; bred by A. Gray, Inglesham, Scot.; exhibited by R. Ness & Sons, Howick, Que.; sire Baron's Pride [3067] (9122); dam Sweetmeat (14595) by Macgregor (1487).
4th. Baron Montague (imp.) [3832] (Vol. 25, p. 212 S.), brown; foaled 1902; bred by Lord Arthur Cecil, Orchardmains, Tunbridge, Kent, Eng.; exhibited by John Davidson, Ashburn, Ont.; sire Drumflower [3833] (10537); dam Baroness Montague (imp.) [4446] (15281) by Baron's Pride [3067] (9122).

STALLION, 1 YEAR OLD.

1st. Baron Bertram (imp.) [4725] (Vol. 27 S.), bay, face and hind legs white; foaled May 14, 1903; bred by Wm. Hood, Chapelton, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride [3067] (9122); dam Elsa of Chapelton [6137] (14623) by Flashwood's Best [3534] (9211).
2nd. Prince Druid (imp.) [4786], brown, white face, four white legs; foaled May, 1903; bred by A. & W. Montgomery, Netherall, Scot.; exhibited by Smith & Richardson, Columbus, Ont.; sire Baron Mitchell (10688); dam Katrine (10635) by Stonehenge (4039).
3rd. Charming Pride [4167], bay, stripe, four white legs; foaled May 3, 1903; bred by R. Dickieson & Sons, Guelph, Ont.; exhibited by And. Aitchison, agent for R. Dickieson & Sons, Guelph; sire Lord Charming [2264] 7564; dam Jennie Lynedoch [3590] by Master Lynedoch (imp.) [1537] (8037).

STALLION, ANY AGE.

1st. Baron Sterling (imp.) [4723] (11611); exhibited by Graham Bros., Claremont, Ont.

FILLY, 3 YEARS OLD.

1st. Flower of Dryfe (imp.) [6154], bay, white face, near fore and off hind foot white; foaled June 19, 1901; bred by R. J. Jardine, Dryfeholm, Lockerbie, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire King of The Roses (9927); dam Dorothy of Fyfe (Vol. 28) by Balfern (9390).
2nd. Royal Princess (imp.) [5209] (Vol. 26 S.), brown, stripe, 3 white legs; foaled May, 1901; bred by R. Renwick, Buckley, Bishopbriggs, Scot.; exhibited by And. Aitchison, Guelph, Ont.; sire Royal Carrick [3533] (10270); dam Princess Lawrence [5210] (13249) by Prince Lawrence [2861].
3rd. Madge of Hallcroft (imp.) [4776], (Vol. 24, p. 625), brown, star and small ratch, 3 white feet; foaled May 16, 1901; bred by Maxwell C. Muirhead, Hallcroft, Dalbeattie, Scot.; exhibited by Smith & Richardson, Columbus, Ont.; sire Ornament [3421] (10603); dam Ursula [4860] (13985) by Flashwood's Best [3534] (9211).

FILLY, 2 YEARS OLD.

1st. Helen Macqueen [3520], bay, stripe, hind feet white; foaled May 6, 1902; bred and exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Macqueen (imp.) [462] (5200); dam Royal Princess [2345] by The Royal Standard (imp.) [2220] (10014).
2nd. Juliet (imp.) [6153], brown, face, off fore and hind legs white; foaled May 24, 1902; bred by W. Hood, Chapelton, Scot.; exhibited by Graham Bros., Claremont, Ont.; sire Baron's Pride [3067] (9122); dam Ellice (13102) by Prince Romeo (8144).
3rd. Donna Roma (imp.) [6169] (Vol. 27 S.), bay, stripe, off fore and both hind feet white; foaled June 14, 1902; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.: sire Woodend Gartly (10663); dam Lawn Dandie of Milton (13013) by Prince Robert (7135).

FILLY, 1 YEAR OLD.

1st. Cairnbrogie Jewel [6188], bay, stripe, hind feet white; foaled July 11, 1903; bred and exhibited by Jas. I. Davidson, Balsam, Ont.; sire, McQueen (imp.) [462]; dam, Cairnbrogie Maggie [2595] by Sir Walter (imp.) [1131] 6478 (8272).
2nd. Queen of Maple Grove [6059], bay, stripe, one white foot; foaled June 27, 1903; bred by R. T. Stewart, Winfield, Ont.; exhibited by Smith & Richardson, Columbus, Ont.; sire Fullarton (imp.) [2370]; dam Riverside Corinne [2957] by Macmurchie (imp.) [2971].
3rd. Lady Peerless (imp.) [6161], dark brown, white face, white on legs; foaled June 23, 1903; bred by J. Robertson, Redfield, Scot.; exhibited by And. Aitchison, Guelph, Ont.; sire Peerless (10832); dam Jessie Clement [6162] by The Most Noble (10657).

BROOD MARE WITH FOAL OF THE SAME BREED BY HER SIDE.

1st. Fair Nellie 2nd [2702], bay, stripe, near hind foot white; foaled Aug. 5, 1898; bred and exhibited by Jas. I. Davidson, Balsam, Ont.; sire What Care I [2617]; dam Fair Nellie 1st, by What's the Odds (imp.) [301].
2nd. Flora Hilton (imp.) [6172], bay, face, near fore and both hind legs white; foaled July 22, 1899; bred by A. Proven, Hilton, Scot.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Rothesay Bay (10624); dam Rossie (Vol. 25, p. 8 S.) by Clinker (7590).
3rd. Royal Princess [2345], brown, stripe; foaled April 16, 1897; bred by Graham Bros, Claremont, Ont.; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire The Royal Standard (imp.) [2220]; dam Corinne [2226] by Queen's Own (imp.) [1708].

FOAL OF 1904.

1st. Macbain [4799], bay, stripe, hind legs white; foaled July 3, 1904; bred and exhibited by Hodgkinson & Tisdale, Beaverton, Ont.; sire Foremost (imp.) [3364] (11339); dam Flora Hilton (imp.) [6172] (Vol. 25 S.) by Rothesay Bay (10624).
2nd. Fair Nellie 4th [6189], bay, star, off hind foot white; foaled May 8, 1904; bred and exhibited by Jas. I. Davidson, Balsam, Ont.; sire Macqueen (imp.) [462]; dam Fair Nellie 2nd [2702] by What Care I [2617].

MARE, WITH 2 OF HER PROGENY.

1st. Fair Nellie 2nd [2702]; exhibited by Jas. I. Davidson, Balsam, Ont.
2nd. Royal Princess [2345]; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.

BEST MARE, ANY AGE, IMPORTED.

1st. Flower of Dryfe (imp.) [6154]; exhibited by Graham Bros., Claremont, Ont.

BEST MARE, ANY AGE, CANADIAN BRED.

1st. Helen Macqueen [3520]; exhibited by Hodgkinson & Tisdale, Beaverton, Ont.

BEST MARE, ANY AGE.

1st. Flower of Dryfe (imp.) [6154]; exhibited by Graham Bros., Claremont, Ont.

SHIRE HORSE ASSOCIATION.

ANNUAL MEETING.

The sixteenth annual meeting of this Association was held at Grand's Repository, Toronto, February 1st, 1905, at 11 a.m. In the absence of President W. E. Wellington, Vice-President Jas. M. Gardhouse took the chair.

On motion the minutes of the last annual meeting were taken as read.

ANNUAL REPORT OF THE SECRETARY-TREASURER.

There has been quite an increase, I am glad to say, in registrations. In 1903 we had 31 pedigrees and 16 transfers, while in 1904 we have recorded 46 pedigrees and 11 transfers, with prospects of more in the future.

I am sorry to report a falling off in membership, from 26 in 1903 to 18 only in 1904, but hope we will do better this year.

Following up the auction sale of S. George Mackiness in 1903, which was a success, Mr. John Chambers, of Holdenby, Northampton, England, on November 22, 1904, sold at the Repository, Burns & Sheppard, proprietors, 16 head of fillies, and 3 stallions were sold at an average of $392.50. The fillies were all two and three years of age. Several other importations have been made and sales are reported as being satisfactory. These will surely give produce in a short time, and they will no doubt be recorded in our Stud Book.

At a meeting of the Directors on November 22nd, 1904, it was resolved that at the coming stallion show two championship prizes of $20 each be donated, one for stallions and one for mares, and that a cup to the value of $25 be given to the Ottawa Spring Show.

A deputation, consisting of John and J. M. Gardhouse, were sent to represent this Association, and will doubtless give a verbal report.

While Shires are not so popular in Canada as Clydesdales, still they are holding their own, and a few good stallions are imported every year which do excellent service in certain sections of the Dominion.

The following circular was sent out to Shire breeders in 1904:

In order to put the Shires where they should be among the heavy draught breeds in Canada, it is necessary to strengthen our Association by the addition of new members and by additional registration.

The popularity of the Clydesdales in this country is largely due to the persistency with which their merits have been advocated by a strong Association supported by most of the Clydesdale breeders in Canada. There is, or should be, no reason why the Canadian Shire Horse Association should not show at least equal energy.

It is not generally known that while there are 11,985 stallions and 15,351 mares (a total of 27,336) Clydesdales recorded in Great Britain, there are 22,055 stallions and 43,931 mares (a total of 65,986) Shires recorded there, or 38,650 more Shires than Clydesdales registered, which shows the estimation in which the Shires are held in Britan.

Volume 1 has been published, and we are now anxious to print Volume 2, in size twice as large as the first volume, and have it in the hands of the printers as soon as possible. All imported horses should be recorded in our Stud Book as well as in the English records, and breeders and importers owe it to the breed as well as to themselves to see that this is done at once.

Please note this particularly: "If you have a mare with four registered sires, you can record her pedigree and any of her colts."

This Association, the only Shire one in this country, is incorporated under the Dominion Act respecting Live Stock Record Associations, Department of Agriculture, Ottawa, 1900, and pedigrees recorded in its Stud Book are eligible for any book in existence. The annual membership fee entitles you to a copy of the Stud Book and a reduction in price of registration from $2.00 to $1.00 per pedigree.

H. Wade, Secretary.

FINANCIAL STATEMENT OF THE SHIRE HORSE ASSOCIATION FOR THE YEAR ENDING DECEMBER 31ST, 1904.

RECEIPTS.

Balance from 1903	$73 57
18 members at $2	36 00
Registration fees to date	57 00
Commissioner of Live Stock, Ottawa	45 35
	$211 92

EXPENDITURE.

Prize cup, Ottawa		$25 00
Delegation to Ottawa		45 35
Postage		6 00
Stationery and printing, etc.		16 68
Auditor and stenographer		6 00
Commission on—		
46 peds. at 35c.	$16 10	
11 trans. at 10c.	1 10	
		17 20
Balance on hand		95 69
		$211 92

The following statement is correct and in accordance with the Books of the Shire Horse Breeders' Association.

CHAS. F. COMPLIN,
Auditor.

H. WADE,
Secretary-Treasurer.

TORONTO, ONT., January 12th, 1905.

Upon motion the report of the Secretary Treasurer was adopted.

Mr. F. W. HODSON, Dominion Live Stock Commissioner, was asked to address the meeting. Mr. Hodson presented the plan of nationalizing the Association and records, the same as at the Hackney meeting, and a short discussion followed.

Mr. H. WADE said his idea about nationalizing the records was that the records would go to Ottawa and pedigrees be issued by the Registrar down there, but he thought the Association would have to hold its meetings in Toronto; and he wished to know why he could not be Secretary in Toronto and his son Registrar down in Ottawa, as he could look after the business at Toronto.

Mr. MESSENGER, Guelph, said Mr. Wade had been their Secretary for many years, and he did not see why they should leave him out now.

JOHN GARDHOUSE: I must say Mr. Wade has been a most efficient secretary, and no one here has a word to say against him; but this matter of nationalizing the records is of great importance to the breeders, and we should decide as to whether we should move the offices to Ottawa or not.

J. M. GARDHOUSE: I think this is a matter of very great importance. I believe the time has arrived that we as an Association should nationalize our records. Just whether it is wise to have a Registrar and a Secretary and all the business moved from Toronto to Ottawa, is another question.

It was then moved by JAS. HENDERSON, seconded by JOHN GARDHOUSE: "That the Canadian Shire Horse Breeders' Association at once proceed to nationalize their Association and record. That F. M. Wade be Registrar. That the mover, the seconder and the President be a committee to meet with the Live Stock Commissioner to complete arrangements forthwith."

On motion of JOHN GARDHOUSE, seconded by JAS. HENDERSON, it was resolved: "That the Canadian Government be and is hereby asked to take

steps to regulate the further importation of horses, cattle, sheep and swine.

"And it is further resolved: That animals for breeding purposes be admitted free of duty when pure-bred, registered in the authorized book of records of the Dominion of Canada, or of the country in which the breed originated, and when owned by a bona fide resident of the Dominion."

OFFICERS FOR 1905.

Honorary President .....F. W. Hodson, Live Stock Commissioner, Ottawa.
President .....Jas. M. Gardhouse, Weston, Ont.
1st Vice-President .....William Hendrie, jr., Hamilton, Ont
2nd Vice-President .....E. C. Attrill, Goderich, Ont.

Vice-Presidents for the Provinces:

Quebec .....Robert Ness, Howick, Que.
New Brunswick .....T. A. Peters, Fredericton.
Nova Scotia .....Hon. T. R. Black, Amherst.
Manitoba .....Geo. Greig, Winnipeg, Man.
Territories .....G. W. Peterson, Calgary, Alta.
British Columbia .....S. R. McNeil, Vernon.
P. E. Island .....Hon. Frank Hassard, Charlottetown.

Directors:

Jos. Dalgety, London.
Jas. Henderson, Belton.
W. E. Wellington, Toronto.
John Gardhouse, Highfield.
W. Bawden, Exeter.
Wm. Wilkie, Toronto.
Col. J. A. McGillivray, Uxbridge.

Delegates to Fairs and Associations:

Industrial Exhibition: John Gardhouse and Jas. Dalgety.
Western Fair: H. Wade and E. C. Attrill.
Central Exhibition, Ottawa: F. M. Wade and Campbell Smith.
Horse Breeders' Association: Jas. M. Gardhouse and Jas. Dalgety.
Registrar: F. M. Wade, Ottawa, Ont.
Secretary-Treasurer: Henry Wade, Parliament Buildings, Toronto.

LIST OF MEMBERS OF SHIRE HORSE ASSOCIATION.

Anderson, J. J .....Dominionville.
Attrill, E. C. .....Goderich.
Bawden & McDonell ..Exeter.
Cochran, L. W. .....Crawfordsville, Ind.
Crossley, H. N. .....Rosseau.
Dalgety Bros. .....London.
Drury, F. .....Charing Cross.
Edwards & Co., W. C...Rockland.
Ferguson & Son .....Carlow.
Gardhouse, C. S. .....Highfield.
Gardhouse, J. M. .....Weston.
Gardhouse, John .....Highfield.
George & Son, H. .....Crampton.
Hay, Geo. .....Lachute, Que.
Hendrie, Wm., Jr. ....Hamilton.
Henderson, Jas. .....Belton.
Hodson, F. W. .....Ottawa.
Hogate, J. B. .....Sarnia.
Jackson, Geo. .....Mount Charles.
Messenger, D. .....Guelph.
Mossop, Wm. .....St. Mary's.
Smith, Walter HarlandToronto.
Spark, W. S. .....Ottawa.
Smith, C. P. .....Hagerstown, Md.
Wilkie, Wm. .....Toronto.
Wellington, W. E. ....Toronto.

PRIZE-WINNING SHIRE HORSES AT THE CANADIAN NATIONAL EXHIBITION, TORONTO, 1904.

Best Shire Stallion, Special, by English Shire Horse Association.

1st. Sand Boy (imp.) [386]; exhibited by J. M. Gardhouse, Weston, Ont.

Best Shire Mare, Special, by English Shire Horse Association.

1st. Lady Luetta [192]; exhibited by J. M. Gardhouse, Weston, Ont.

STALLION, 4 YEARS OLD AND UPWARDS

1st. Mars (imp.) [275] (17103), bay, white spot on face, white hind legs; foaled 1897; bred by W. C. Galt, Wellington, Burton-on-Trent, Eng.; exhibited by Morris & Wellington, Fonthill, Ont.; sire Vulcan (4145); dam Galatea (10048).

STALLION, 3 YEARS OLD.

1st. Sand Boy (imp.) [386], bay, white on face, one fore and both hind legs white; foaled 1901; bred by John Harrison, Sand Villa, Cockerham, Eng.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Shore Side (19125); dam Kate (42348).
2nd. Barrow Albert (imp.) [388] (20232), brown, face and legs white; foaled 1901; bred by Jas. Eadie, Barrow Hall, Derby, Eng.; exhibited by Morris & Wellington, Fonthill, Ont.; sire Sir James (17142); dam Lockinge Mistletoe (29264).
3rd. Nateby Pioneer (imp.) [384] (20753), chestnut, star, 4 white feet; foaled 1901; bred by T. Eccles, Grimsargle, Preston, Eng.; exhibited by J. B. Hogate, Sarnia, Ont.; sire Gunthorpe Advance (13136); dam Bessie (17761).
4th. Nateby Twilight, (imp.) [385] (Vol. 25 E.), bay, stripe, one hind leg white; foaled 1901; bred by J. & T. Hull, Preesall, Poulton-le-Fylde, Eng.; exhibited by J. B. Hogate, Sarnia Ont.; sire Gunthorpe Advance (13136); dam Stalmine Chance (13513).

STALLION, 2 YEARS OLD

1st. Nately Defender (imp.) [398] (Vol. 26 E.); foaled in 1902; exhibited by J. B. Hogate, Sarnia, Ont.; sire Crossmoor Carbon (19525); dam Jessie Stuart (Vol. 26 E.).
2nd. Nately Review (imp.) [396] (21700), bay, star, one white hind fetlock; foaled in 1902; bred by John Taylor, Lancaster, Eng.; exhibited by J. B. Hogate, Sarnia, Ont.; sire St. Vincent (18337); dam Doll.
3rd. Nately Banner (imp.) [397] (21695), bay, stripe on face, 3 white fetlocks; foaled 1902; bred by Robt. Stafford, Garstang, Eng.; exhibited by J. B. Hogate, Sarnia, Ont.; sire Gunthorpe Advance (13136); dam Stafford's Belle (15684).

STALLION, 1 YEAR OLD.

1st. Mars Jr. [394], bay, hind feet white and ankles; foaled May 16, 1903; bred by A. B. Robertson, Port Robinson, Ont.; exhibited by Jacob E. Barrick, Humberstone, Ont.; sire Mars (imp.) [275] (17163); dam Daisy [82].

STALLION, ANY AGE.

1st. Sand Boy (imp.) [386]; exhibited by J. M. Gardhouse, Weston, Ont.

FILLY, 3 YEARS OLD.

1st. Lancashire Lass 2nd [158], light bay, white face, white on off fore and near hind legs; foaled Spring, 1901; bred and exhibited by Morris & Wellington, Fonthill, Ont.; sire Mars (imp.) [275] (17103); dam Leta [101].
2nd. Lady Darnley [197], brown, star, hind feet white; foaled May, 1901; bred by John Moody, Highfield, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Darnley (imp.) [183]; dam Bay Jess [196].

FILLY, 1 YEAR OLD

1st. Lady Luetta [192], bay, star, hind ankles white; foaled May 6, 1903; bred by Morris & Wellington, Fonthill, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Mars (imp.) [275] (17103); dam Louise [172].
2nd. Lady Penzance [182], bay, stripe, near fore and near hind feet white, off hind stocking white; bred and exhibited by Morris & Wellington, Fonthill, Ont.; sire Mars (imp.) [275] (17103); dam Beatrice (imp.) [97].
3rd. Althea [194], bay, near hind foot white to hock; foaled 1903; bred and exhibited by Morris & Wellington, Fonthill, Ont.; sire Mars (imp.) [275] (17103); dam Leila (imp.) [131].

BROOD MARE, WITH FOAL OF SAME BREED BY HER SIDE.

1st. Laura [112], bay, stripe, near fore and both hind legs white; foaled May 1, 1896; bred by Morris & Wellington, Fonthill, Ont.; exhibited by John Gardhouse & Sons, Highfield, Ont.; sire Pride of Hatfield (imp.) [256]; dam Daisy [82].
2nd. Moulton Marianna (imp.) [164] (39708), brown, white ranges, off hind leg white; foaled 1900; bred by E. B. Bettinson, Gedney, Eng.; exhibited by Morris & Wellington, Fonthill, Ont.; sire Lockinge Harold (16779); dam Marianne (12893).

FOAL OF 1904.

1st. Rival Duke [395], bay, white star on forehead; foaled April, 1904; bred and exhibited by John Gardhouse & Sons, Highfield, Ont.; sire Newnham Duke (imp.) [343] (19893); dam Laura [112].
2nd. Admiral Togo [399], dark bay, stripe in face and both hind legs white half way to knee; foaled 1904; bred and exhibited by Morris & Wellington, Fonthill, Ont.; sire Mars (imp.) [275]; dam Moulton Marianne (imp.) [164] (39708).

MARE WITH 2 OF HER PROGENY.

1st. Leta [101], Lancashire Lass [158], Jean [195]; exhibited by Morris & Wellington, Fonthill.

BEST MARE, ANY AGE.

1st. Lady Luetta [192]; exhibited by J. M. Gardhouse, Weston, Ont.

CANADIAN PONY SOCIETY.

The fourth annual meeting of the Canadian Pony Society was held at the Repository, Toronto, on Tuesday evening, January 31, 1905. There were over sixty members present, and it was the most successful meeting in the history of the Society.

The Vice-Chairman, Mr. Foster, in calling the meeting to order said that he regretted very much that the President was unable to be with them that evening, and that he was very pleased to see such a goodly number on hand. The past year had been a very prosperous one, and they now stood the second largest Horse Society in point of membership in Canada.

On motion, the minutes of the last meeting were taken and read.

The Treasurer, Mr. A. Taylor, read the financial statement, which was adopted.

SECRETARY'S FOURTH ANNUAL REPORT.

I hereby present to you the fourth Annual Report of the Society, showing the transactions for the year ending Dec. 31st, 1904.

The past season has been a most successful one, and full of interest to the members of the Canadian Pony Society. Its most important work was in connection with the second Annual Open Air Horse Parade, in which the Board of Directors of this Society formed a part of the General Committee, and our President held the position of vice-chairman on that board. The members of the Society assisted in many ways to make it a success. Our membership, considering the fact that the Society is only four years old, is very satisfactory indeed. We have more than doubled our membership roll during the past year, and it is hoped that we will be able to have one hundred members on our list from all parts of Canada before the next annual meeting. It will be seen, according to the Treasurer's report, that we have a balance on hand. That our bank account has not increased very much is due to the fact that each year we expend a portion of our revenue for challenge cups at the different shows. I am glad to say that the directors of several of the Horse Shows and Exhibitions have, in a number of cases, declared in favor of paying more attention than has hitherto been done to the pony classes.

The display of ponies at the different Horse Shows and Exhibitions throughout Canada, from all reports, was one of which all those interested in ponies should be proud, both in regard to numbers and quality. The following Horse Shows and Exhibitions had a good display of ponies: Montreal Horse Show, Winnipeg Exhibition, Brandon Exhibition, National Exhibition, Canadian Horse Show, and Open Air Horse Parade; the latter three will be dealt with more fully in this report. The thanks of this Society are due the Hackney Horse Society of Canada, which kindly donated as a special prize at the Canadian Horse Show in 1904, $25 in gold for the best pony sired by a registered hackney stallion. It was won by Mrs. Chas. Wilmot, Port Hope, a member of our Society. The Canadian Pony Society challenge cups were won in 1904 as follows: At the Canadian Horse Show, by Master Eric Skead, of Ottawa; and at the National Exhibition, Toronto, by Mr. George H. Gooderham, Toronto.

The past year has been a most encouraging one for pony breeders. There has been a marked increase in the demand for ponies, and it is hoped that

this year will show still greater improvement. At the New York Show, in 1904, the pony stallion, Berkely Bantam, the property of Wm. Carr, who won the first prize for stallions not exceeding 12 hands 1 inch, was sold the following day for $8,000 to Judge W. H. Moore, of Chicago. For this animal His Majesty King Edward VII. had offered $5,000, and J. B. Grovener, $7,000. The price paid by Judge Moore is the largest ever given for a pony in America.

There have been five meetings of the Board of Directors during the past year in connection with the Canadian Horse Show, the National and other Exhibitions, and the Second Annual Open Air Horse Parade. These meetings were held to consider the prize lists in the pony classes at these shows, and the best way to increase our membership was discussed at these meetings; and the Secretary reported an increase in the membership at each one of these meetings. Other matters in connection with the advancement and improvement of the Society were discussed, and the more success we can meet in obtaining new members the more challenge cups we will be able to offer at the different shows throughout Canada.

The thanks of this Society are due to the Press for notices, etc., of our meetings, including especially *The Toronto Sunday World*, and *The Farmers' Advocate*, Winnipeg and London, and also to our esteemed hon. director, Mr. H. J. P. Good, for the splendid way in which he worked up the interest in the Second Annual Open Air Horse Parade.

The Horse Parade

Was held under the auspices of the Open Air Horse Parade Association (incorporated), the Harness, Hunter and Saddle Horse Society, and the Canadian Pony Society. A more complete account will appear in my report to the Open Air Horse Parade Association (Incorporated), and I will therefore deal with the part most interesting to the members of the Pony Society.

The parade and show was held in the Queen's Park, Toronto, on July 1st, 1904, when the largest entry list of anything of its kind ever before known was brought out before the horse-loving public. The class of equine beauty shown in the parade was unsurpassed, and the fine turnouts of those who showed in the light harness classes spoke well for the quality of horses and ponies owned and bred in Canada.

The object of this parade and show must be palpable to every member of this Society, but for fear there should be any misunderstanding I will here quote a paragraph contained in the prize list:

"The object of holding this horse parade," the paragraph referred to runs, "is to improve the condition and treatment of commercial horses," etc., "to induce owners and drivers to take more pride in their appearance, and the public to take more interest in their welfare," and also "to hold an Annual Open Air Horse Show for hunter, saddle and harness horses and ponies."

It will thus be seen that the aims of the parade were three-fold in practice, in addition to affording an absolutely free entertainment to the people on an national holiday, and at a time that did not interfere with their enjoyment of the latter part of the day. There were no entry fees, no grand stand charges, and no charge even for a catalogue. In short, everything connected with the show, except the trophies, which in value and specie amounted to some fifteen hundred dollars, were free. All the officers and directors rendered their services, which in some cases were arduous, without any compensation whatever, except that which consists in the reward of achievement, and in the knowledge of a good work performed.

From every standpoint the show was a success. The judges began their work promptly at 9.30, and so expeditiously did they perform their duties that by 10.15 the parade was under way. Every street covered by the parade, from the reviewing stand in Queen's Park and back, was black with people, and it is estimated that over 8,000 were present in Queen's Park during the judging of the different classes. A commendable spirit was shown by nearly every unsuccessful exhibitor, for failure to win one of the coveted rosettes did not deter them from joining in the parade, and remaining until its close, nor had they any reason to feel ashamed of their entries, for all were of a high standard, and both local and visiting horsemen expressed themselves as surprised and pleased at the excellent classes shown.

Many favorable comments were made by the exhibitors and officers on the splendid rosettes which the committee designed. They were voted to be the finest rosettes ever given out at any horse show or parade in America. The first prize was a gold medal and a red rosette; second prize, silver medal and blue rosette; third prize, bronze medal and yellow rosette; fourth prize, white rosette.

The winners in the Pony classes were as follows:

10.—Best Pony and Outfit, 13.2 Hands and Under.

1, Black Diamond, Mrs. Charles Wilmot; 2, Flossy, J. Garrett; 3, Teddy, Chas. Page; 4, Rolly, Jack McLaughlin.

11.—Best Pony and Outfit, Over 13.2 Hands, and Not Exceeding 14.1. ..

1, Jessie, Broadview Pony Farm, and Gooderham, Geo. H. Gooderham, equal; 2, Major, Thos. Dunn; 3, Princess Nellie, Miss Ruth Lillian Massey.

14.—Pony Under Saddle, 13.2 Hands and Under.

1, Dolly, W. R. Mead; 2, Bay Kitty, Broadview Pony Farm.

15.—Pony Under Saddle, Over 13.2 Hands.

1, Danson, Arthur Taylor, Canadian Pony Society; 2, Octopus, T. O. Cutchley; 3, Pren, J. F. H. Ussher.

16.—Polo Ponies Under Saddle

1, Lady Jane, Alf O. Beardmore; 2, Tiny Tim, Col. G. A. Stimson; 3, Satine, Alf O. Beardmore.

17.—Best Boy Rider, 14 Years of Age and Under, on Pony.

1, Melville Davies; 2, Wilfred Davies; 3, Card Roesler.

The total number of entries was 380, 46 of which were ponies. There were 500 horses in the parade, more than double that of last year.

The following gentlemen were the representatives appointed to act on the committee from the Pony Society:—H. M. Robinson, vice-chairman; Henry Wade, W. H. Knowlton, Ald. Samuel McBride, A. Taylor, Geo. Davies, W. N. Wade, R. W. Davies, G. V. Foster, F. Hodgson, Dr. J. A. Mills, E T. Campbell, Geo. Barron, Capt. C. Harbottle, and H. Gerald Wade, Secretary.

In conclusion, gentlemen, I can only wish that when we meet again (D. V.) twelve months hence, our Society, which up to the past year has been advancing slowly, may be found to have greatly increased its number of members and its balance on hand. May we cultivate such social and fraternal feelings as will enable us to look forward to our meetings as pleasant re-unions as well as necessary business conventions. All of which is respectfully submitted.

H. G. Wade,
Secretary.

PRIZE MONEY GIVEN TO PONY CLASS.

The following is a list of number of classes and amount of prize money given to pony classes at the Canadian Horse Show, Toronto, from 1899 to 1904:

1899— 3 Classes	$ 75
1900— 3 Classes	75
1901— 2 Classes	50
1902— 3 Classes	75
1903— 6 Classes	170
1904—11 Classes; $345 cash. $150 plate	495

PONY WINNERS AT THE NATIONAL EXHIBITION, TORONTO, CANADA, 1904.

111.—Stallion, 14.1 Hands and Under.

1, Mrs. C. Wilmot, Port Hope (Black Diamond).
2, John E. Fells, Belgrave (Tony).
3, R. J. McCormack, Warwick (Little Dan).

112—Colt, Filly or Gelding, 2 Years Old.

1, John Moyer, Zenda (Nellie Icelander).
2, John E. Fells, Belgrave (Topsy).
3, R. J. McCormack, Warwick (Dick).

113.—1, Broadview Pony Farm (Young Duke); 2, Geo. Davidson, Cherrywood (Lucy).

114.—1, Miss Mary Maclean, Toronto (Blackie).

115.—1, W. F. Maclean, Toronto (Bedelia); 2, Geo. V. Foster, Toronto.

167.—Pony in Single Harness, 11 Hands and Under.

1, R. J. McCormack, Warwick (Dick).
2, Miss Iva Colgan, St. Catharines (Daisy Dran).

168.—Pony in Single Harness, Over 11 Hands up to 12.

1, G. V. Foster, Toronto (Puss).
2, John Garrett, Toronto (Flossie).
3, Chas. Lovejoy, Mimico (Clover).

169.—Pony in Single Harness Over 12 and up to 13.1 Hands.

1, Geo. H. Gooderham, Toronto (Lady Constance).
2, Ernest Mills, Toronto (Dolly Varden).
3, Mrs. E. Mead, Norway (Dolly).

170.—Pair of Ponies in Harness, Over 12 Hands up to 13.1

1, James McDowell, Toronto (Tommy and Dangerous Maid).
2, Mrs. E. Mead, Norway (Peggy and Dolly).
3, John R. Walsh, Toronto (Tony and Queenie).

171.—Pony in Single Harness, Over 13.1 Hands up to 14.1.

1, J. J. O'Leary, Toronto (Minnehaha).
2, Broadview Pony Farm (Lady Grey).
3, Broadview Pony Farm (Jessie).

172.—Pair of Ponies in Harness, Over 13.1 Hands up to 14.1.

1, Broadview Pony Farm (Jessie and Lady Grey).

175.—The Canadian Pony Society Silver Cup.

For the best pony and outfit owned by exhibitor. Cup to be won three times before becoming the absolute property of the exhibitor, during which time it will remain in the custody of the Canadian Pony Society or such other place as the directors may decide. The following are the names of the winners of the Challenge Cup: 1900, Misses Gooderham; 1901, Miss Ames; 1902, F. Maher; 1903, Wm. Walsh; 1904, Geo. H. Gooderham.

177.—1, Harold Campbell, Toronto; 2, Wilfred G. Mead, Norway; 3, Harvey Foster, Toronto.

178.—1, Broadview Pony Farm (Bantam), 2, Broadview Pony Farm, (Bay Kitty).

RESOLUTIONS.

The following resolutions were adopted:

That the matter of grants to Horse Shows and Exhibitions be left to the Board of Directors of this Association.

That the Directors of the Industrial Exhibition Association be requested to have the money prizes increased in the Pony Classes, so as to be on par in value with the other horse classes.

That this Association beg to tender their thanks to our Hon. Director, Mr. H. J. P. Good for the great assistance through the press he has given this Association in the Toronto Sunday World during the past year.

That this Association beg to tender their thanks to the Directors of the Canadian Horse Show for the splendid manner in which they granted the request of this Association in increasing the Prizes in the Pony Classes at the last Canadian Horse Show.

That the Constitution and By-laws of this Association as revised by the Board of Directors be adopted.

That the thanks of this Association be tendered to the Horse Breeders' Association for their kindness in donating a Silver Cup at the 10th Canadian Horse Show for the best Pony in Harness, under a saddle or in the line, not exceeding 14 hands 1 inch.

That the thanks of this Association be tendered to the Canadian Hackney Horse Society for the Prize of $25.00 in Gold presented at the 10th Canadian Horse Show to the best Pony stallion, mare or gelding not exceeding 14 hands 1 inch, sired by a registered Hackney stallion.

That this Association express its sympathy with the Open Air Horse Parade.

That the Secretary of this Association write his Worship the Mayor advising him that this Association is in thorough sympathy with the views of Ald. S. McBride in asking the City Council to provide a suitable place for a speedway and a bridle path for the horsemen of Toronto.

PRESENTATIONS.

The Secretary, Mr. H. Gerald Wade, was made the recipient of a beautiful silver tea set. Mr. H. J. P. Good made the presentation in a neat complimentary speech, which was fittingly responded to by Mr. Wade.

The Treasurer, Mr. A. Taylor, was also remembered, and received a handsome hunting crop. Mr. E. T. Campbell made the presentation in a witty speech, and Mr. Taylor briefly but heartily replied.

A whip was to be presented to Mr. H. M. Robinson, but as that gentleman was unable to be present it was forwarded to his address.

OFFICERS OF THE CANADIAN PONY SOCIETY, 1905.

Hon. President	H. M. Robinson.
President	G. V. Foster.
1st Vice-President	Dr. D. King Smith.
2nd Vice-President	E. T. Campbell.
Hon. Treasurer	A. Taylor.
Hon. Secretary and Director	H. Wade, Parliament Bldgs., Toronto.
Secretary	H. Gerald Wade, Ottawa, Ont.

HONORARY DIRECTORS:

W. K. Knowlton,
H. Wade,
R. Beith,
H. J. P. Good,
Major A. B. Lee.

DIRECTORS:

R. W. Davies, Toronto.
T. Graham, Claremont.
F. Hodgson, Toronto.
W. N. Wade, Ottawa.
Ald. S. McBride, Toronto.
Major C. C. Harbottle, Toronto.
R. Miller, Stouffville.
W. J. Stark, Stouffville.
Dr. J. A. Mills, Toronto.

DELEGATES:

National Exhibition .....H. M. Robinson.
Canadian Horse Breeders' Association...G. V. Foster and H. G. Wade.
National Live Stock Convention .....E. T. Campbell and H. G. Wade.

THE HARNESS, HUNTER AND SADDLE HORSE SOCIETY.

ANNUAL MEETING.

The annual meeting of the Harness, Hunter and Saddle Horse Society of Canada, was held in the King Edward Hotel, Toronto, on January the 30th, 1905, the President, Mr. Walter Harland Smith, being in the chair. Among those present were : Noel Marshall, George H. Gooderham, Henry Wade, Ald. McBride, W. J. Stark, Gerald Wade, H. C. Tomlin, J. J. Dixon, R. W. Davies, F. J. McCabe, Thomas Rolston, Dr. W. A. Young, Major Harbottle, J. J. Burns, Thomas Bartrem, W. T. Merry, and H. J. P. Good, Secretary.

PRESIDENT'S ADDRESS.

BY WALTER HARLAND SMITH, TORONTO.

The minutes having been read, the President in a brief address outlined the objects of the Society, which were both professional and amateur. The Society had a sphere of decided usefulness before it. There were questions continually cropping up of interest to the classes it sought to represent, and he urged members to endeavour to give more time and thought to those interests. There were questions of transportation, of imports and exports, of the duties, of representation at Horse Shows, of the inspection and registration of stallions, mares and foals, of prize lists, and the settlement of disputes in connection with the exhibition, and in fact a variety of matters which come within the scope of such an organization to deal with. Hitherto perhaps members had not taken that advantage of referring their disputes to the Society that they might have done, but he desired to point out that any members having grievances would have their causes considerably strengthened by taking such action. He desired to congratulate the gentlemen present upon the success of members at the different Horse Shows held during the past year, and particularly to mention in that connection, Miss K. L. Wilks, of Galt, Dr. W. A. Young, Messrs. J. J. Dixon, R. Davies, Robert Beith, George Pepper, and Thomas A. Crowe. There were

others equally as well deserving of mention, but if he were to go all over the classes represented by the Harness, Hunter and Saddle Horse Society, he would have to name two-thirds of the entire exhibitors. The Society should pursue a more vigorous course than it had been doing, should hold more meetings and should manifest a greater interest in matters of vital importance to the horse interests that it represented. A new Government was about to come in, and he trusted that they would fulfill their pre-election promises and give some long sought for systematic encouragement to the horse, as well as to other animals of domestic use. They should also take up the matter of prizes at the different Horse Shows, and make their representation to the committees thereof with a view to securing a better division of the classes and more adequate premiums. The Society should also endeavour to extend its range and make its usefulness more felt. He was pleased to note that there was a disposition at the Canadian Horse Show to give distinct and more definite encouragement to amateurs, for he felt that in the success of the amateur laid entirely the success of the dealer. With these few remarks he desired to welcome the members to the annual meeting and to thank them for their attendance. Before calling upon the Secretary to read his report he would urge members to try and secure recruits to the membership.

THE SECRETARY'S REPORT.

I have to report in the first instance an increase of interest in the Society. New members are constantly coming in, one of the latest being, you will be especially pleased to hear, Miss. K. L. Wilks, of Galt, who is probably doing more for the light harness horse in Canada than any single individual has done before, although it is not difficult to recall the names of men who have performed great deeds in promoting the interests of the trotter and the pacer. None, however, have risen quite to the height of Miss Wilks, who paid the highest price, namely, $15,500 for Sadie Mac, at the recent Old Glory sale. It cannot be said that our Society has up to date accomplished a great deal, but in originating and supporting the open-air horse show and parade that has now been successfully held for two years, it has done excellent work and thoroughly justified its existence. There is, however, every evidence of a greater future before it. If the new Ontario Government, as the leader has promised to do, enters upon the systematic encouragement of the horse, it will be for this Society not alone to closely watch current events but to offer to the Government such practical advice as may be thought desirable. This is probably the most important question before horsemen to-day, vitally concerning as it does interests in this Province amounting to fully $100,000,000. It will be a pity if the Government enters upon a scheme without due advisement and consideration by practical men. Money can easily be wasted without accomplishing much good, while on the other hand a too stinted expenditure may stop short at a point at the turning of affairs to substantial advantage. Whatever is done, I am sure you will agree with me should only be undertaken after consultation with men of wide experience and men representing every type of horse. Taking this view, I would venture to suggest that representatives be appointed to act with the representatives of other societies to wait upon the new Minister of Agriculture, when he is settled in office, and to place their views before that gentlemen. It is by inaugurating such movements as this that the society can best make its influence felt and best extend its sphere of usefulness. How these things are to be achieved in my thinking should

be a serious subject for consideration in the minds of all members, who should come here not to fall in with the views of others, but to initiate something new for the improvement and benefit of the classes of horses that the Society seeks to represent. In saying this much I trust I shall not be considered pedantic, or as assuming an unwarrantable position.

As members are doubtless aware, the past year has been one of unusual success abroad for Canadian exhibitors, a number of whom, it is pleasant to be able to state, are members of this Society. You will, it is certain to say, unite not alone in offering congratulations to these enterprising members, but will also heartily join in the felicitations that are to be extended to them at a banquet that is to be given in their honor at the Walker House by the Canadian Horse Breeders' Association on Thursday evening next.

At a meeting of the executive committee of your Society there was some conversation regarding the advisability of allowing ourselves to be absorbed in the Open Air Horse Parade Association. It was pointed out, however, that such a course would lead to the loss of our identification and the lessening of our sphere of usefulness, and therefore the matter was left in abeyance,—left in fact for this meeting to deal with if it thought proper. As the Open Air Horse Parade Association has established a separate and distinct organization, although this Society had the honor of initiating the movement and is consequently its sponsor, it rather appears as if the question of amalgamation had dropped out of the "realm of practical politics," as it is customary to say in another sphere.

If there are any changes that there are thought desirable in the prize list either of the Canadian Horse Show, which it is announced is to be held the last week in April, or of the Canadian National Exhibition, I would suggest that this is the place to consider the same, so that your secretary may forthwith forward your suggestions to the proper quarters. In this connection it should be stated that members of the executive got together after the annual meeting last year and decided that it would be a pity if the name of the Society were altogether omitted from the prize lists of the year, They, therefore, subscribed these amounts on the spot: Walter Harland Smith $50, J. J. Dixon $10, T. A. Crowe $10, H. M. Robinson $5, and authorized your secretary to advise Manager Orr, who was making up the prize list of the Canadian National Exhibition, and wished an immediate answer, that the Harness, Hunter and Saddle Horse Society of Canada would give one hundred dollars in gold for the best carriage pair on the grounds. After advising Dr. Orr, your Secretary was called to the Northwest and the matter remained in abeyance. Mr. George Pepper, one of our members, won the prize, for the payment of which your President advanced the necesary $100. At the meeting of the executive previously referred to, your Secretary was instructed to collect the money subscribed, and in the meantime to notify the Treasurer to pay over $50 to Mr. Walter Harland Smith, awaiting the payment of the subscriptions, the proceeds from which will of course go into the treasury and be devoted to making up the balance remaining beyond the President's munificent donation.

Acting on his appointment as one of the delegates from the Society to the National Live Stock Convention held at Ottawa last March, your Secretary attended and read a paper, which was flatteringly received, on the connection of horse racing with the objects of the National Association of Stock Breeders, incidentally having reference also to the racing at fairs and to the inspection and registration of stallions. The last mentioned subject was made a matter of special discussion later on, and Live Stock Commissioner Hodson was requested to get the views of the various Horse Societies

and Associations and to place them before the convention that is to be held this year. I would, therefore, recommend that the same be considered at the present meeting and that Mr. Hodson be advised of the conclusion arrived at.

Brief reference has previously been made to the Open Air Horse Parade that was held on Dominion Day last and that proved a brilliant success, thanks mainly to the indefatigable efforts of Hon. Chairman Noel Marshall, our President, Walter Harland Smith, the Treasurer, Dr. W. A. Young, the Secretary, H. Gerald Wade, the Superintendent, George Swift, and other members of our own and the Canadian Pony Society, all of whom loyally and energetically furthered the project, with the result that under practically the same auspices the parade promises to be permanent as a demonstration on our great national holiday. If I might be allowed I would suggest that a vote of thanks and congratulations be passed to these gentlemen and to the City Council for its subscription towards the objects sought. It should be mentioned that interest in the parade and show, and the success thereof, was greatly enchanced by the addition of a score of classes especially devised for the horse of commerce, as many trades as possible, or thought advisable, being provided with separate classes. Testimony to the improved care and treatment of horses in consequence of this movement has already been forthcoming.

In conection with the arena for stock judging to be erected on the exhibition grounds, it appears to your Secretary that it would be worth while to request the board of management to provide a room where horsemen could meet and discuss questions pertinent to their interests.

Last year, in his address, the President referred to the advisability of establishing a Canadian register for trotting and pacing horses. This is assuredly a question that might be taken up by this Society, seeing that its objects are more national than local, and in view of the enterprise being shown by Miss Wilks and the success of Canadian-owned horses in the States last year, such as Gallagher 2.03 1.2, and Harold H. 2.03 3.4

Once more I would beg to refer to the desirability of the name of the sire, and of the dam, if possible, being given with every entry at horse shows. The attention of secretaries, it seems to me, might well be directed to this matter, as the adoption of the rule would not alone enable breeders to recognise the best stock-getting stallions, but would make breeding to type more possible and would lead to improved individuals, three things the consummation of which is greatly to be wished for.

All of which is submitted.

H. J. P. Good,
Secretary.

Taking up the report, the President referred to the proposed amalgamation between the Society and the Open Air Horse Parade Association. He pointed out that the Harness and Saddle Horse Society was really the parent of the Open Air Horse Parade Association, and that in its creation it had fulfilled a part of its original function, which was to hold just such open air horse parades and shows as the new Association was doing. He was opposed to amalgamation for reasons that he thought must be obvious to every member present.

Ald. McBride was disposed to endorse the views expressed by the President, and was of the opinion that amalgamation was neither advisable nor possible.

The President pointed out that by amalgamation the Harness, Hunter and Saddle Horse Society would lose its identity. He favoured general

meetings of all societies. In his view they did not get together often enough in order to discuss important matters. As he had said in his opening address, there were many questions of common concern that should be dealt with by practical men, such as the members of their Society undoubtedly were. The Society should have a greater voice in arranging for Horse Shows and so on. He hardly thought that the management of these institutions should hand over their functions to the Society, but he did think a good end might be accomplished if Associations holding shows sent drafts of their prize lists before final adoption for the members of such Societies as theirs to pass their opinion upon. In that way many valuable suggestions might be forthcoming.

Mr. Henry Wade suggested that the Canadian Horse Breeders' Association filled the bill.

The President thought that they should have a general meeting and get together at least once a year.

Mr. Gerald Wade said every member received a report of the Canadian Horse Breeders' Association and consequently was familiar with the matters dealt therein, and could consider them at their Society's meetings.

Ald. McBride would like to see the light harness horse people more considered and brought together oftener.

On motion of Mr. George H. Gooderham, seconded by Mr. W. T. Merry, a motion was passed thanking the President for his address and the Secretary for his report, which was unanimously adopted.

On motion of Ald. BcBride, seconded by Mr. W. T. Merry, a resolution in favour of the establishment of a speedway and a bridle path in Toronto, was enthusiastically adopted.

A motion in endorsement of the grant made by the Ontario Government to the Canadian Horse Show was adopted, and the hope expressed that the grant would be continued without interruption by the incoming Government.

OFFICERS FOR 1905.

Hon. President..... W. Harland Smith.
President..... J. J. Dixon.
1st Vice-President..... R. W. Davies.
2nd Vice-President ..... Dr. W. A. Young.
Secretary..... H. J. P. Good.
Treasurer..... Henry Wade.

Directors.

W. T. Merry.	George H. Gooderham.
H. C. Tomlin.	Noel Marshall.
R. J. Fleming.	Ald. S. McBride.
Col. Dr. G. A. Peters.	Major Harbottle.
T. A. Crowe.	H. M. Robinson.

Representatives to Canadian Horse Breeders' Association:—J. J. Dixon, and Dr. W. A. Young.

Representatives to the Industrial Exhibition:—Noel Marshall and W. Harland Smith.

Representative at National Live Stock Convention:—H. J. P. Good.

At a subsequent meeting it was resolved to give a gold medal in turn for the best harness horse, the best hunter, and the best saddle horse, at the Canadian Horse Show and the Industrial Exhibition.

The meeting then adjourned.

HARNESS, HUNTER AND SADDLE HORSE SOCIETY FINANCIAL STATEMENT. FOR THE YEAR ENDING DECEMBER 31ST, 1904.

Receipts.

Balance from 1903	$61 50
49 members at $2	98 00
	$159 50

Expenditure.

Postage and stationery	$4 55
Grant to Mr. Good	50 00
Auditor and stenographer	7 00
Balance on hand	97 95
	$159 50

I hereby certify that the foregoing statement is correct and in accordance with the Books of the Harness, Hunter and Saddle Horse Society.

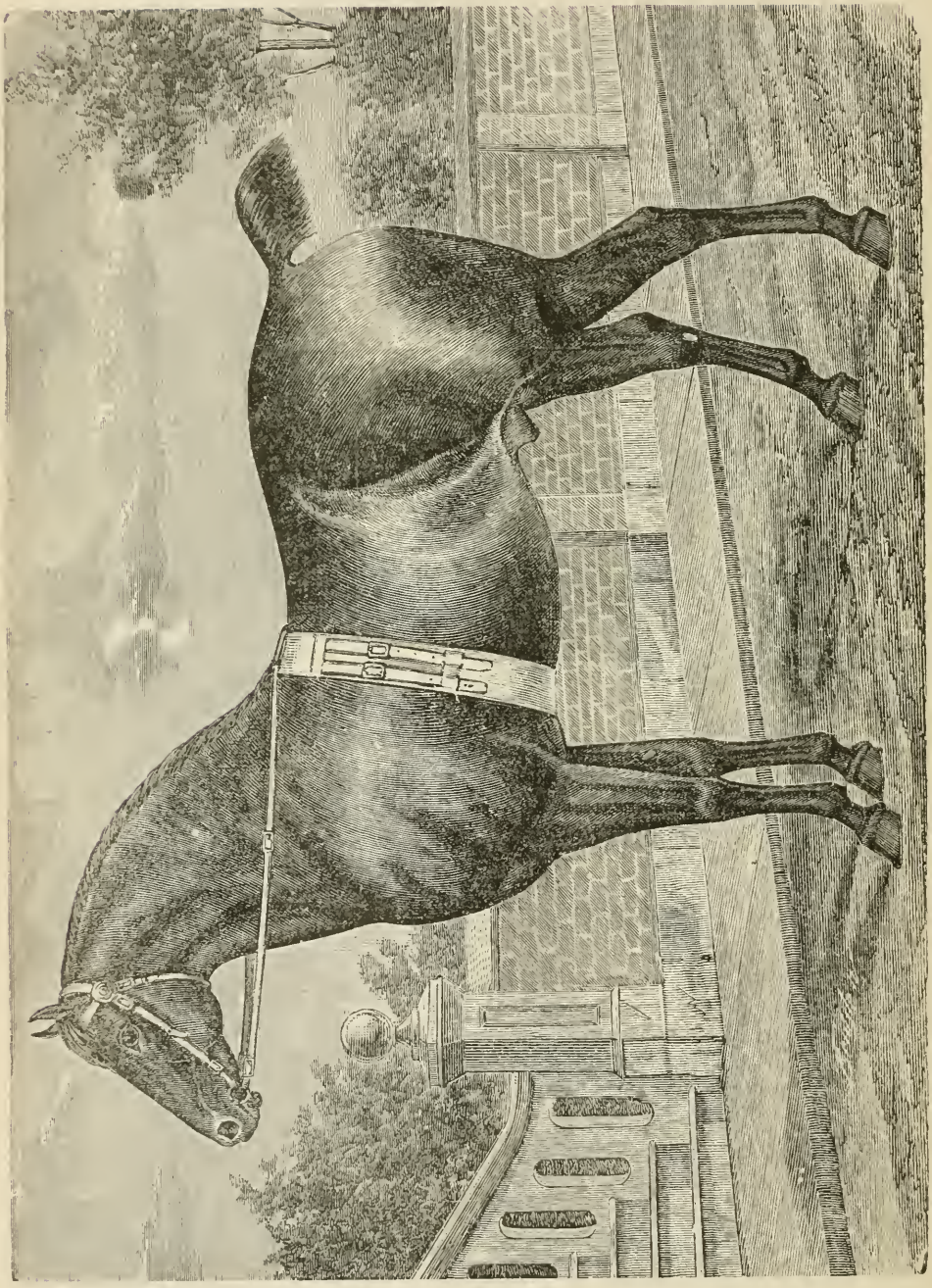
Chas. F. Complin,
Auditor.

Henry Wade,
Treasurer.

Toronto, Ont., January 12th, 1905.

HARNESS, HUNTER AND SADDLE HORSE SOCIETY OF CANADA. LIST OF MEMBERS, 1905.

Ardagh, J.	12 College St., Toronto.
Barron, Geo.	728 Yonge St., Toronto.
Bond, Robt.	19 Sheppard St., Toronto.
Campbell, E. T.	41 Major St., Toronto.
Cox, A. C.	Toronto.
Crow, T. A.	619 Yonge St., Toronto.
Davies, R.	Toronto St., Toronto.
Davies, R. W., Jr.	Todmorden, Ont.
Dixon, J. J.	42 King St. W., Toronto.
Dunn, Thos.	Mimico Asylum.
Edwards & Co., W. C.	Rockland, Ont.
Foster, G. V.	Toronto.
Fuller, S. B.	Woodstock, Ont.
Gregory, B. F.	99 Gerrard St. E., Toronto
Harbottle, C. C.	Confederation Life B'g., Toronto.
Hawkens, Fred	76 St. George St., Toronto
Hodgson, Dr., V.S.	Toronto.
Hodgson, F.	26 Duchess St., Toronto.
Hodson, F. W.	Ottawa, Ont.
Johnston, A.	Cor. York & Front Sts., Toronto.
Lawrence, W. A.	Milton, Ont.
LeVesconte, R. C.	20 King St. W., Toronto.
Lovell, R. J.	56 Yonge St., Toronto.
Macabe, T. J.	Toronto.
Maher, F.	Bloor St., Toronto.
Maher, P.	Bloor St. E., Toronto.
Merry, W. T.	36 Temperance St., Toronto.
Millard, B. H.	Orillia, Ont.
Montgomery, J. D.	46 King St. W., Toronto.
Murray, J.	621 Yonge St., Toronto.
McBride, Samuel	249 Bathurst St., Toronto.
McFarren, Jas.	Cor. Queen and Sherbourne Sts., Toronto.
Oille, Dr. J. L.	599 Yonge St., Toronto.
O Neill, Jas. R.	Cobourg, Ont.
Pember, W. T.	127 Yonge St., Toronto.
Pepper, Geo.	253 Huron St., Toronto.
Peters, Dr. G. A.	102 College St., Toronto.
Proctor, Frank T.	344 Yonge St., Toronto
Reinhardt, A. L.	487 Jarvis St., Toronto.
Robinson, H. M.	Care Rice Lewis & Co., Toronto.
Ryrie, Harry	Cor. Yonge & Adelaide Sts., Toronto.
Sheppard, O. B.	Toronto.
Sharpe, S. J.	61 Brunswick Ave., Toronto.
Smith, Walter Harland	Grand's, Toronto.
Sullivan, Ed.	Leader Hotel, Toronto
Taylor, A.	100 Baldwin St., Toronto.
Tomlin, H. C.	420 Bathurst St., Toronto.
Wellington, W. E.	49 Wellington St., Toronto.
Young, W. A., M.D.	145 College St., Toronto.



CANADIAN HORSE BREEDERS' ASSOCIATION.

ANNUAL MEETING.

The eleventh annual meeting of the Canadian Horse Breeders' Association was held at Grand's Repository, Toronto, February 2nd, 1905, at 5.30 p. m. Dr. And. Smith, the President, occupied the chair.

On motion, the minutes of the last annual meeting were taken as read.

CORRESPONDENCE.

A letter was read from Noel Marshall, President of the Open Air Horse Parade Association, asking for a grant of $200 towards their prize list for the coming Parade.

The Secretary-Treasurer then read his Annual Report and Financial Statement, which were adopted.

SECRETARY'S REPORT.

Once again I am called upon to congratulate the Association upon its continued success. The year 1904 was pre-eminently one of progress a regards the horse. Every association has been able to report increased interest and additions to the membership. Possibly the automobile has had some inence upon the demand for high-class carriage horses, but there is little, if any, evidence apparent that such is the case, at least in Canada. As the machine becomes cheaper and its practical side more developed, it is probable some effect will be experienced. But by that time other things will have happened—the population will have increased, another great transcontinental railway will be in existence, and a vaster area of land will have been settled. All these things mean, no matter what machinery may be able to accomplish, an increased demand for the horse that will more than offset any inroad that the automobile or electricity-driven vehicles may make. Thus there is little prospect that the horse will diminish in numbers or retrograde in usefulness. And consequently there will ever be need of the beneficial influence wielded by this Association and its affiliated societies.

During the past year, members of your Association have been, I am pleased to say, exceptionally successfully at United States' Shows. At St. Louis, at Chicago, at New York and elsewhere, in every class that Canadian horses have been entered they have won more than their fair share of prizes. This state of things is most gratifying, especially in view of the intense native rivalry to which they are subjected, and which is growing more acute yearly. You will be pleased to hear that the gentlemen who have achieved his success, to wit, Messrs. Robert Beith, Graham Bros., Geo. Pepper, T. A. Crow, and James Murray, with Miss Wilkes of Galt, are to be specially honored at a banquet following this meeting, when they will be presented with a tastefully designed address commemorative of their good deeds, enerprise and pluck in keeping the horses of Canada prominently before the world.

You will also be pleased to hear that our shows in 1904 were exceptionally successful. Commencing with the Clyde and Shire Stallion Show in March the entries exhibited an improvement and the interest considerable

development The same is true of the tenth Canadian Horse Show held in the Armouries, April 27, 28, 29, 30, when, despite the fact that there were no extraneous attractions, reliance beng placed alone upon the horse, and only a few weeks previous a devastating fire had occurred, the attendance was the largest on record and the entries greatly in excess of any previous year. The story was told over again at the Dominion Exhibition at Winnipeg and at the Canadian National Exhibition at Toronto, at both of which the entries were really phenomenal both in numbers and in quality. While the Toronto Exhibition in the horse department achieved even greater success in 1904 than in the previous year, when the exhibition was dignified by the style Dominion, the Exhibition at Winnipeg was little short of wonderful, considering the distance many exhibitors were called upon to travel. Both Ontario and Quebec were well represented, and nearly every section of the Territories sent its quota to make up a display of horses, heavy and light, that would have reflected credit upon any city on the continent. Reports indicate that the same order of things marked every large show throughout the country. In this connection it might be suggested that your Association can take considerable credit to itself, in so far as it has given of its funds to swell the prize lists at Ottawa, Toronto, Winnipeg, and London.

In Toronto a departure was made in the general run of things by giving a score of classes at the second Open Air Horse Parade and Show held on Dominion Day for the horse of commerce, every branch of trade having its particular section. It is pleasing to be able to say that this departure proved a brilliant success, the interest manifested by the public being great, while merchants and others went into the spirit of the thing with a zest that proved a new channel of usefulness had been opened up in the way of horse shows. Medals, ribbons and small sums of money were distributed, with the result that lasting emulation was created among the men, who, according to the testimony of several large employers of labor, have been prompted to take greater care of, and more pride in, their charges. It is not necessary to expatiate upon the splendid aid to humanity, to the elevation of the men and to the better treatment of the horse, that such shows are bound to prove. Your Association will assuredly wish their promoters continued and abundant success.

Your attention is directed to the fact that by resolution passed at the National Live Stock convention at Ottawa last year, you are requested to place upon record your opinion of the advisability of inspection and registration of stallions. It is a subject that has been several times brought to your attention, but no definite action has been taken in connection therewith, and it might be as well at this meeting to place on record your feelings in regard to the matter.

In conclusion, it may be of interest to those who fear the decrease of the horse, to know that in four years in the United States the animal has increased in numbers by 3,196,535, or from 13,537,524 in 1900 to 16,736,059 in 1904, and in value by $532,970,856, or from $603,969,442 to $1,136,940,298. In Canada, of course, such an increase neither in numbers nor in value has taken place, but still the progress forward in each has been considerable.

A communication was also read from Mr. Alf. Rogers, of the Hamilton Riding and Driving Club, asking that more amateur classes be put in the prize list of the Canadian Spring Horse Show.

RESOLUTIONS:

Moved by W. A. Lawrence, seconded by Alf. Rogers, "That the Canadian Horse Breeders' Association grant the sum of $200.00 to the Open Air Horse Parade Association for prizes for their Parade." Carried.

On motion of William Hendrie, Jr., seconded by Robert Miller, it was resolved: "That the Canadian Horse Breeders' Association grant $1,000 for next year's Clyde and Shire Show if they (the management) wish to continue it, and that we confirm the grant that has been given this year."

Ald. Samuel McBride moved, seconded by Dr. W. A. Young, "That the Canadian Horse Breeders' Association grant the sum of $1,750 towards holding the Eleventh Annual Canadian Horse Show." Carried.

Moved by Robert Miller, seconded by Geo. Pepper, "That the sum of $50 be granted by this Association for man in charge of Live Stock Car going to the West." Carried.

Geo. Pepper moved, seconded by Ald. Samuel McBride, "That H. J. P. Good and J. Applegath be accepted as delegates from the Open Air Horse Parade Association, and that they be added to the directorate of this Association." Carried.

The meeting then adjourned.

FINANCIAL STATEMENT OF CANADIAN HORSE BREEDERS' ASSOCIATION FOR YEAR ENDING DECEMBER 31ST, 1904.

Receipts.

Balance from 1903	$5,396 56
72 members at $1	72 00
Interest on deposits	123 21
Share of profit from Horse Show	991 29
Government grant	2,000 00
	$8,583 06

Expenditure.

Grant to Canadian Horse Show	$1,750 00
" Stallion Show	1,000 00
" Grant to Stallion Show, Ottawa	500 00
Prize Industrial Exhibition	25 00
Auditor and stenographer	22 00
Expenses, delegation to Ottawa	193 47
Wages, man on car	50 00
Cost of banquet	151 30
Postage	74 50
Stationery and printing	52 98
Balance on hand	4,763 81
	$8,583 06

Audited and found correct.

Henry Wade,
Secretary-Treasurer.

Chas. F. Complin,
Auditor.

Toronto, Ont., Jany. 12, 1905.

CANADIAN HORSE BREEDERS' ASSOCIATION OFFICERS FOR 1905.

President ..... Dr. And. Smith, Toronto.
1st Vice-President ..... Thos. Graham, Claremont.
2nd Vice-President ..... Wm. Hendrie, Jr., Hamilton.

DIRECTORS:

Thoroughbred Association: Dr. And. Smith, and Wm. Hendrie, Jr., Hamilton.
Harness, Hunter and Saddle Society: W. A. Young, M.D., Toronto; and J. J. Dixon, Toronto.
Hackney Horse Society: Thos. Graham, Claremont; and E. C. H. Tisdale, Beaverton.
Trotting and Pacing Horse Association: Geo. Pepper, Toronto; and Samuel McBride, Toronto.
Clydesdale Horse Association: Peter Christie, M.P., Manchester; and Fred. V. Richardson, Columbus.
Shire Horse Association: Jas. M. Gardhouse, Weston; and Jas. Dalgety, London.
Canadian Pony Society: G. V. Foster, Toronto; and H. G. Wade, Ottawa.
Draught Horse Association: Jas. Mitchell, Goderich; and Thos. McMillan, Constance.
Open Air Horse Parade: H. J. P. Good, Toronto; and J. Applegath, Toronto.
Secretary-Treasurer: Henry Wade, Toronto.

DELEGATES TO EXHIBITIONS:

National Exhibition, Toronto: Geo. Pepper, Toronto; and Geo. T. Davies, Toronto.
Western Fair, London: O. Sorby, Guelph; and Wm. Mossop, St. Mary's.
Canada Central, Ottawa: John Bright, Myrtle; and Wm. Smith, Columbus.
Secretary-Treasurer: Henry Wade, Toronto.

On motion it was resolved: "That the above representatives from the different Associations constitute the Directorate of this Association."

FINANCIAL STATEMENT OF THE CANADIAN SPRING STALLION SHOW, 1904.

RECEIPTS.

Balance in hand from last show	$228 00	
Interest to Nov. 30th, 1903	4 32	
Entry fees	362 00	
Ticket receipts	143 50	
Horse Breeders' Association	1,000 00	
Clydesdale	700 00	
Dominion Government grant	180 00	
		$2,677 82

EXPENDITURE.

Prize money: cash, $1,443; cup, $30	$1,473 00	
Lectures and Judges	131 00	
Advertising: *Farmers' Advocate*, $25; *Mail*, $11.25; *Farming World*, $6; *Sun*, $6; *Can. Sportsman*, $4; *Nor'-West Farmer*, $8; *Montreal Star*, $6; *Globe*, $12; *World*, $8.40; Toronto Bill Posting Co., $6	92 65	
Printing: Mail Job Co.	128 90	
Salaries: Ticket Seller, $9; Ticket Taker, $5; Night Watchman, $6; Superintendent, $20; Superintendent's pay sheet, $14; G. De Warren Greene, $29; office staff, $35; Secretary, $50	168 00	
Committee Fees: Wm. Smith, $14.50; Peter Christie, $4; T. A. Graham, $19; J. Bright, $14.50; J. M. Gardhouse, $17; H. G. Boag, $12.50; J. Vipond, $10.50; F. Richardson, $10.50	102 50	
Hire of Repository	200 00	
Miscellaneous: Postage, $56; rosettes, $50.75; catalogues, $35.20; fence and stand, $14; badges, $8.40; stereopticon for lecture, $7; telegrams, $2.64; tables and chairs, $3; sundries, $5.18	182 17	
Balance	199 60	
		$2,677 82

Audited and found correct.

HENRY WADE,
Secretary-Treasurer.

G. DE WARREN GREENE,
Auditor.

DIRECTORS' MEETING.

At the adjournment of the annual meeting the Directors convened and appointed a President and two Vice-Presidents, whose names will be found in the list of officers.

The following gentlemen were appointed a committee to meet the Country and Hunt Club for the purpose of arranging details in connection with carrying on the Eleventh Canadian Horse Show: Dr. And. Smith, Toronto, (President); Peter Christie, Manchester; J. M. Gardhouse, Weston; Geo. Pepper, Toronto; Wm. Hendrie, Jr., Hamilton; J. J. Dixon, Toronto; Thos. A. Graham, Claremont; Ald. Sam'l McBride, Toronto; H. G. Wade, Toronto; Dr. A. Young, Toronto.

Moved by Ald. McBride, seconded by Geo. Pepper, "That the entire directorate of the Horse Breeders' Association wait upon the new Provincial Government to ask for the usual grant." Carried.

Mr. Alf. Rogers and Mr. Henderson, of Hamilton, appeared before the directors and asked that more amateur classes be made at the Canadian Horse Show, as they did not think it fair they should require to compete against horses campaigned through the different exhibitions.

The President assured these gentlemen their request would be considered and asked that one, or both, appear before a meeting of the Joint Committees on the following Monday.

The meeting then adjourned.

THE BANQUET.

The fifth annual banquet of the Association was held at the Walker House on the evening of Thursday, February 2nd. About five hundred lovers of the horse were present, and the function was a most enjoyable one. The event of the evening was the presentation of an address to the guests of honor, the gentlemen who as breeders had been so successful at the great shows on the other side of the line and who had thus brought honor and distinction to Canada. The toast was happily proposed by Dr. A. Smith, the chairman, in a few apt phrases, and after it had been duly honored he called upon Mr. H. J. P. Good to read an address to Miss Wilkes, (as represented by her manager, Mr. James Wetherall,) Mr. Robert Beith, Messrs. Graham Brothers, Mr. George Pepper, Mr. Thos. A. Crow, and Mr. James Murray. Mr. Graham was first called upon to reply. He said, one of the most important features of a successful show yard career is to be found in the making of your entries in the right classes. Still another is in a quality we should all possess (although few have it), and that is to know when we are justly beaten and admit it like men. It has never been the policy of the firm of which I am a member to stuff our entry list in order that we might make a big rather than a select showing, and I want to say to you that when you booked me for a speech on this occasion you entered me outside of the class. (Laughter.) I would, however, be dumb if I failed on this occasion to voice my appreciation of the fair and considerate treatment we as Canadian exhibitors have uniformily received from the managers of the leading shows on the other side. Those of you who have not participated in the big shows across the line, through fear that full justice would not be given you, have wrongfully judged their show management. The United States is a big country, and in the wealth represented in their live stock it is probably the richest in the world, but I want to tell you that there

are no shows held on the other side that would not be materially strengthened in their attractions by a liberal showing of Canada's best. (Applause.) And the Americans are not blind to this fact, which, in itself, is a guarantee of a treatment that is judicial in its fairness to those of us who are numbered among their annual patrons. Aside from the value of the prizes won we have found that an exhibition of our stock at the Garden Show in New York and the International in Chicago has proved good business getters for us. So that, all things considered, we feel as though we cannot too highly praise the management of the recognized leading shows across the line, and give it as our opinion that by making Canadian patronage to American live stock exhibitions more general a great good to all of us would surely follow. (Applause.)

Mr. Robert Beith, who was loudly cheered, said: As one of those honored by this tribute to-night I thank you sincerely. It is always gratifying to me to have the esteem and good will of my fellow citizens, but more especially is it gratifying to know that I have the esteem of my fellow horsemen with whom I have been associated from boyhood to the present time. When I was a very young boy I was asked by one whose name I bear to fit and exhibit a colt at a township show, which I did, and was successful. And here let me say to you that many are of the opinion that the days have gone by when we should have township and county shows. But I wish to say to you that county and township shows are to the larger shows as the kindergarten is to the university. (Hear, hear and applause.) However, I fitted and exhibited that colt at that township show, and I won a red ticket with him. That, I dare say, has had much to do with my being a guest of yours to-night. From that small beginning I went on to a larger show, a show which my esteemed friends Mr. Miller and Mr. Smith have had much to do with—the County Show of South Ontario. (Applause.) And it looked as large to me in those days as did the great St. Louis Exposition to me in the year 1904. From there I came to the larger show in the city of Toronto (hear, hear.) which at that time was the Provincial Show held away up near the Asylum in a little field to the south of the institution, and where I exhibited a mare and a colt. There I met the pioneers of the great stock industry of this country, the late John Miller, the late James I. Davidson, the late Richard Graham, the late Joseph Thompson, the late Jonathan Porter, and many others whose names I cannot remember at the present day. They, gentlemen, were laying the foundation of the great stock industry of this country at that time and this country does not realize, nor ever will realize the worth they were to this fair Dominion of ours. (Hear, hear.) From that I went on from one occasion to another till I came to your great Industrial Show, which has done so much for this country. Perhaps you people of the city of Toronto do not ralize to-night the great value of the Industrial Exhibition to the agricultural interests of this country. But I in a small measure realize it, and from this exhibition a few of us venture to go to the larger shows to the south of us. We went to the city of New York and were defeated. We came home, and we resolved that we would go back again and measure swords with them once more. We were a little more successful. My esteemed friend, Mr. Graham here, who has done so much for this country, was with me. We went back again and we captured that coveted trophy of theirs the Challenge Cup. (Applause.) Not satisfied with that my friend Mr. Graham said, "We must go back, and we must defeat the champion stallion of America, which they procured from us after we had captured that cup." We went back again, and we defeated the champion. That led up to us trying conclusions at the World's Fair at the city of St. Louis last year. Horse breeders were there from every corner

of the globe. They were there from the Argentine, they were there from Europe. They were there from our Antipodes, and there we were once more successful. And here let me say on behalf of my friend Mr. Graham that he would have been equally successful with myself had he exhibited the horses there. But on account of reports from that city regarding the warm weather he was afraid to send his horses there and concluded that it would be wiser to keep them at home, although they had been bought at a very large expense to exhibit at that show, and I am satisfied had he taken those horses there he would have been equally successful with myself. (Applause.) Now, I have given you the story, and there is nothing that we have done in the way of capturing prizes from our neighbors to the south of us but any young lad in this country can achieve. It comes from small beginnings, and leads up from one show to another, until at last you triumph at the larger shows of the country. I thank you again for the honor you have done me and those associated with me in those exhibitions. (Applause.)

Mr. Wetherall, who was also warmly greeted, said: On behalf of Miss Wilks allow me to sincerely thank you for your kindness to-night, all of which I am sure will be very much appreciated by her. Like Mr. Graham, I feel a little inclined to side-step the serious work of replying to this toast. I think Mr. Pepper exhibited those horses on the other side, and he is the gentleman who ought to speak.

Mr. Murray spoke briefly saying: I have to thank you for the very kindly sentiments expressed in the address which Mr. Good read. I am not a public speaker and merely wish to thank you for the honor done us.

Mr. Pepper was greeted with cheers. He said: I have had the pleasure of showing a good deal. I have had a great many honors shown me, and have has as rule not been very well satisfied when I have received the yellow ribbon, but to-night, for once,—(Holding up the printed address with its decoration of yellow ribbon)—I get the yellow and I am satisfied. I wish to say to you gentlemen, too, that Canada is bound to be successful. It has the best horses, and would make one of the nicest states they have in the Union—if it was in—and they would be glad to have us in. (Hear, hear.) The Americans came here and asked us to go there and show. They use us well always, and give us a good, fair share of the ribbons. But I want to say that no matter where you go, all over America, you do not find any nicer city than Toronto, no better horses than are produced in this country, and you cannot find in any assembly you go to a nicer or better body of men than you can see right here to-night. Toronto is a sober city, and you are a careful, hardworking people, and that kind of people is bound to get to the top. If you want to try it, come over and I am sure you will come back having no reason for regret. We have been showing a good while in this country. I am sorry to say that about the week before last my partner went to England, and it was our intention this year and the following years to see what we could do with Canadian horses in the Old Country, and I am sorry to say that my partner dropped dead while there, and that blocks us in the meantime. The reputation of Canadian hunters and jumpers has gone abroad, and they are cabling for them. Five or six have gone over to Belgium within the last two months, and within the last month I have had no less than three cables and invitations to take Canadian jumpers and show them through Belgium this coming year. And I can assure you I will appreciate, as I told you, this yellow ribbon, and if I am spared I will go on and try to uphold the reputation of the Canadian horse as long as I can. (Applause.)

"The Horse Interests" was coupled with the names of a number of well known speakers. Mr. King Dodds spoke in his usual witty fashion. As

one who for thirty-five years had had the honor of conducting a paper devoted to the horse interests of the country he could not forego the pleasure of being present, although he was not in good health. He paid a tribute to the gentlemen who had been honored by the previous toast, referring to them as men who had had the pluck and courage of their convictions, who believed that the Canadian bred horse was as good as any horse in the world, and who were prepared to go away from home and against bitter competition endeavor to win more honors for their country. They had done this, and he did not believe that any advertisement Canada had received in many years was more widespread or of greater meaning than the fact that Miss Wilks, of Galt, had stood in Madison Square Garden, New York, and paid the highest price ($15,000) ever paid for a three year old. (Applause.) Every horseman present would re-echo the hope that Miss Wilks would have unbounded good luck with that animal she had purchased. For over twenty-five years he had been trying to interest the governments of this country in promoting the interests of the horse. He had thought, in 1896, he had succeeded, when he induced the administration of Sir Charles Tupper to put a handsome sum of money in the estimates for a re-organization, as it were, of the whole question. But the government of Sir Charles was defeated and they were, unfortunately, thrown back; but it afforded him extreme satisfaction to say that Mr. Whitney, the incoming Premier of Onario, three or four weeks ago, after carefully considering the matter for two days, had authorized the statement which he had made in his journal that if returned to power he would adopt a liberal and a wise and progressive policy with reference to the horse interests of the country. (Applause.) The Government blue books demonstrated that the horse interests of Ontario alone represented over $66,000,000, and included 660,000 head. Under these circumstances it was strange that that interest had not received more careful attention than it had. (Hear, hear.) There was no country in Europe but spent enormous sums of money in the development of what they looked upon as one of the grandest agricultural assets, and while it would be a great mistake for the Government of this Province to undertake anything that would conflict with the energy and enterprise of horse importers themselves, still there were a thousand and one ways in which the Government could grant assistance. No truer word was ever spoken than Mr. Beith's remark that evening, that the township and county shows were the nursery of the greater exhibitions, and if Mr. Whitney's Government would give the proper amount of aid to those shows, within ten years the horse interests of the country would be nearer $100,000,000 than $65,000,000. He would take the liberty at an early day of corresponding with the officers of the horse associations of Ontario, and would endeavour to have a meeting in Toronto so as to formulate a plan to bring to the attention of the Government and he had no doubt but that the result would be eminently satisfactory to the horse breeders of the Province of Ontario. (Applause.)

Mr. Thomas Crawford, M.P.P.: I am very grateful for the honor done me, and of the opportunity afforded me to be present at the fifth annual banquet of the Canadian Horse Breeders' Association. It is not the first time I have had the honor of being present at your banquet, and while the former occasions were satisfactory and quite a success, I think that this one exceeds all former efforts, and I am sure that the particular occasion —that of doing honor to the gentlemen we have heard from to-night—calls for special recognition. They are a credit not only to the horsemen of Canada but to the whole nation, and they have shown the people to the south of us, that we have in Canada the enterprise, the climate, and the class of horses capable of carrying all before them. I think the occasion very in-

spiring. Now, I think it is perhaps true, as Mr. King Dodds has said, that it is possible that the Governments of this country have not given the consideration to this great industry that it is justly entitled to. But of course there comes a time when honest effort will be recognized, when men of great enterprise will be taken notice of, and when it becomes an assured fact—as has been made clear in this room to-night—that the horsemen of this country must get recognition and will get recognition; and then I have no doubt that the wealth represented by this great industry will increase rapidly. Mr. King Dodds has told us that Mr. Whitney has pledged himself to give consideration to this important industry and I have no doubt that he and those associated with him will give it their best consideration. And I would, I think, not be doing my duty if I did not say, as to my own particular views, that the gentlemen who has been at the head of these great agricultural interests of the Province of Ontario during the last ten or fifteen years is entitled to all credit for the honest effort and untiring energy displayed in the development of the agricultural interests, and the horse interests as a part of the great Department which he has presided over. (Applause.) It is a question, perhaps, whether another man may be found capable of filling that position, and it may be a time before one can secure the experience that the late Minister of Agriculture has had the opportunity of acquiring; but it may be that there is as good fish in the sea as ever was caught and it is possible that the right man will be forthcoming, and that this industry, as well as all other great interests in connection with our agricultural industries will receive proper attention and that they will continue to grow. (Applause.) And in my opinion Mr. Pepper referred to a very important point when he said we have here in the Province of Ontario the men, we have here the climate, and we have a variety of classes of horses, and it seems to me the important thing in connection with this great industry is that we may be able to raise the class of horses best suited for the market, and which will realize for the producer the most money. My own experience in the line of handling cattle has taught me that it is not wise to stop raising a certain line of animal when the market is glutted. It very often happens that when a year or two or three years pass over that is the very class of horses, or animal, that there is a demand for. Therefore as stock breeders we want to watch carefully and see to it that we have the best horse available for the demands that may be made, and for the market that there may be for the different classes, and from the judgment and energy that they have exhibited in the past I have no doubt that the breeders will see to it that the proper kind of horses will be raised. And regarding Mr. Pepper's other suggestion, we may not have remount stations in this country, but the time is not far distant when we ought to have agents in the Old Country and throughout Europe in order to display through them the best type of horse for any purpose, and by working through the men who are capable of handling the different classes of horses, and locating themselves perhaps in various points in the old land wherever there may be found to be a market for horses, we may not only increase the number that we may raise in this country and find a suitable market, but have the quality of such a character that we will take the first place as horse breeders of any country under the sun. (Applause.) So far as I am concerned, in my position in the House I shall be prepared to give my best thought and consideration, as a supporter of Mr. Whitney, to what is just and right for the Canadian Horse Breeders' Association and for the agricultural interests of the Province of Ontario, and of all Canada as well. (Applause.)

Mr. A. W. Campbell, Deputy Commissioner of Public Works: I am sure I thank you very kindly for the invitation which you have extended to me to be present with you at this your fifth annual dinner. As the Commissioner of Highways for the Province of Ontario it brings me in contact with nearly every municipality in the Province, and, consequently, I have the opportunity of viewing the condition of the roads throughout the whole Province. And it may appear somewhat singular to you that I should have received this invitation to be present with you to-night to talk upon a subject which may appear to be considerably foreign to the one in which you are specially and so enthusiastically engaged. But I claim that there is not a subject that is so closely connected with the one in which you are so particularly interested as that of the condition of the common roads of the country. (Hear, hear.) I believe that the highway is the counterpart of the horse, and the horse is possibly the better part of the road. But they are indivisible: the one cannot succeed without the other, and the other is absolutely useless without the one. (Applause.) I have been extremely interested this evening, it being the first opportunuity I have had of being present with you during your meetings, to find that it does apear as if your aim and object is to try to produce the very best possible results with the least amount of energy, the least amount of labor, and to make the product of your effort as profitable as it can possibly be made. And my observation in going throughout the country is that to-day is a day of specialization. The farmer strives to cultivate the soil so as to produce the very best crop that he possibly can from the efforts which he expends in cultivating the soil and in expending his time upon the farm. You as horsemen are trying to study the question of horse raising so as to make that particular subject as profitable as it is possible to make it. In every line of manufacture and in all industries it does appear as if the secret of to-day is to produce the finest product possible with the least possible labor, and to place upon the market that which will bring to you the greatest return for your effort. Now, while you have been doing a very great work, while you are exceedingly enthusiastic in your efforts, while you have associated about you to-day possibly the brightest, and the most brilliant, the most enthusiastic and the most enterprising class of men that the community can produce, yet unless you strive to make all the machinery which comes within the sphere or the range and the usefulness of the produce which you are turning out the most perfect and most profitable, then the end for which you are striving fails and you do not reach the ultimate, the full result. In nearly every line of transportation efforts are being put forth to secure the best results. Since the year 1807, the launch of the first steam boat, a marvellous change has been brought about in the means of water transportation. Steamboats have been enlarged. They have been propelled by improved machinery, so that to-day, upon our great waters we find immense, floating barges, capable of carrying large amounts of produce, capable of carrying in the most perfect manner passengers, and those who are using that service. Steamboat companies have expended immense amounts of money in providing faster ships. ships capable of carrying greater amounts of produce, and ships that will accommodate to the fullest extent those who are using the accommodation. Railways are spending huge fortunes in providing perfect road beds, in increasing the size of their locomotives, and the strength of their motive power, in order to carry the largest amount of produce or freight with the least possible expenditure of energy. And the railways are simply the main highways of the country. But more than all the carrying capacity of the railroads and the canals, and all the other means of transportation everything carried has, in the first instance, to pass over the common roads of

the country, and has to be hauled by horse power. Consequently it is advisable and it is necessary that you should look to the improvement of your horse power in the same way that the steamboat companies and the railway companies are looking to the improvement of their means of propulsion. I am extremely glad that you have formed an organization for the purpose of studying closely the breeding of horses, that you have all united together for the purpose of exchanging ideas and giving to the others the best of your thought and the best of your consideration along these lines. I only wish that every member of this organization would become a member of what may be commonly known as the Good Roads Organization, so that you could study closely the question of how roads should be built, what system of administration should be adopted for expending our money and improving these roads in the best possible manner with the means which is at our disposal for that particular purpose. And I believe if I had the enthusiastic body of horsemen that have spoken here to-night, that have been honored by these complimentary addresses, becoming members of our organization, the marvellous advancement and progress which you have made along the lines of improving the breed of horses in this country would also be exercised in the improvement of the roads, their counterpart, and that these two should join hands and both unite together in the interests of the common good of the country, namely the horse, the power, the roads, and the other facilities for transporting the enormous amount of produce which this very wealthy province is at the present time producing and sending to the markets of the world. (Applause.)

Mr. F. W. Hodson, after a few preliminary remarks, said: "I would not be doing my duty to-night if I did not join with you in doing honor to the men who have done so much honor to Canada in carrying the banner of Canadian breeders to the front in meeting the producers of the world, and I trust they may long be spared to keep that banner well to the fore. (Applause.) It has been said that old men looked to the past and the good things that happened in the days gone by. I am not a very old man, but I am somewhat experienced in show yard history, for I commenced about 1872, about the time some of the younger men who are now carrying the banner forward were born. Since then I have been more or less closely identified with the show yards, and have taken a very great interest in them. When not exhibiting myself I have been watching the course of events as closely as possible, especially in connection with the great shows across the border. You will remember in 1876 the Americans held the first international show held in America—the first, at any rate, of any great account—and there the Canadian Government made the first national exhibition. At that time the Canadian Government, for the first time in the history of Canada, sent out Commissioners or expert live stock men to spy out the land and find where the suitable animals were to send and compete for the great prizes at Philadelphia. At that time quite a number of live stock were chosen at the Provincial Fair held in the city of Toronto. The stock was gathered together and the Government paid the expenses of selecting this stock, and the expenses in connection with the stock from the time that it left home until it was returned. I have not any means of finding just what that expenditure was, but Canadians were very successful at that time. My father and I were among the competitors, and I think the exhibition there did Canada a great deal of good. The next great exhibition of an international character was at Chicago. There we have some definite figures as to the cost from a Canadian standpoint. Now, my purpose to night is to draw your attention to the cost of making these exhibitions. I find that the Dominion and Provincial Governments at that time joined

together in again making a national exhibit and sending Commissioners throughout the land to select the stock and then paying all expenses of men and exhibitors. It cost the Dominion Government $12,535 in selecting and sending that stock forward. At Philadelphia the exhibitors had their expenses paid. That is all they got, save the honor. Some months after we came home we were presented with medals, but at Chicago large money prizes were offered and Canadians found it fairly profitable in the way of prizes and had quite a profit also in the way of sales. In connection with the next exhibition at Buffalo $15,536 was spent in collecting stock by the Dominion Government and bringing it back afterwards. At that exhibition Canadians won a large amount in prizes, but I find that in doing this work a large amount of money was spent each year in selecting the animals, in finding the men to send out, and in paying the wages and expenses of these men and maintaining them while there. And in spite of all we could do I found flaws in the system of selecting the animals. We found in spite of all we could do that some of the men sent out to select the animals would cost more than they ought, and frequently animals would be selected that ought not to be, and animals left at home that ought to have gone. And when the time to go to St. Louis came around there were several prominent live stock men who concluded not to exhibit there. But the Canadian Government wisely decided to double the prizes taken at that exhibition and results were very satisfactory. Instead of the exhibitors receiving $7,500 out of the $15,000 as at Buffalo, I find that the total expenses of the department there were about $2,000 and the exhibitors received $21,528 from the Canadian Government. That does not include any special prizes at all. The expenses which the Government heretofore paid were borne by the farmers themselves and amounted to about $7,000, and I found that they had about $14,000 to the good, $14,000 of Canadian money over and above their expenses, which was a great deal better then having nothing at all, as was the case of the previous exhibition. (Applause.) I find that Canadian exhibitors received $34,056 for a total expenditure of $7,000 made by themselves.

Dr. Smith: And they deserved it all. (Applause.)

Mr. Hodson: Is not that a great deal better? Are you not receiving very much more benefit where the breeders select their own stock and act on their own responsibility and have their prizes doubled? (Hear, hear.) In case of another large exhibition I would be in favor of not doubling the prizes but multiplying them by three or four, and have the exhibitors select their own stock. I think it a much better way. (Applause.)

Controller Hubbard was also warmly received and delivered a sparkling and sympathetic address

Mr. Robert Miller said: It is one of the proudest moments of my life to be one of this great assemblage that has met together to do generous honor to those generous, noble men who have done this splendid work for Canada and for the horse interest. I do not propose to keep you very long to-night, but there has been one subject touched on here that I believe should be earnestly considered in every assembly of horsemen or cattlemen, or any other class of men met together to consider their own special interests. That is the question of legislation. Mr. E. King Dodds spoke very well with regard to what might be done by the Legislature of this Province. Mr. Crawford has done the same. Now, I have never posed as a prophet or a great politician, or anything of that kind, but those who were here last year will remember that I suggested that certain things might be done for the horse interests of this country. And, to my surprise, when I think of the short time passed since then, one of these things

has been crystallized into the best legislation ever given horse breeders in this country, and the other part is promised now and will be of the greatest benefit to the horse breeders and horse interests of this country. When men say that we should have certain legislation, when they say that we should elect 98 men here in the local Legislature, or a larger number at Ottawa, to give us the legislation that we need in all our varied interests without them being prompted as to what we need, I say we are asking too much of these men. We as horsemen should bring our particular interests and questions raised as to what we need and want and discuss them together in our annual meetings and meetings such as these. We would in that way inspire each other and could go to the legislatures and tell them what we need; and I can tell you that these men are clever enough, and keen enough, and perhaps selfish enough if you want to put it that way, to give us what we want, because it will be in their own interests. If we want anything from Mr. Whitney or Sir Wilfred Laurier it is our duty to go to them and ask them for it. We cannot expect them to give it to us without the asking. (Applause.)

Charles Calder, M.P.P., South Ontario, said: I assure you that I am proud to be here to-night to do honor to the gentlemen who have won honors for our country, but at this late hour after all the eloquence has been heard it would be unwise for a young man like myself in legislation to say much with regard to it. But you are all aware, as I am, that the horse interests of this country is a large and growing interest and demands at the hands of the legislators that protection and encouragement which the immense amount of wealth which is invested in this business deserves. (Applause.) And there is no doubt, as the last speaker has intimated, that the legislators of this country feel and know that they have at the back of them the support that it is necessary to have in order that these interests may be supported on every occasion. I have no doubt in my mind that the representatives of the people in this country, if they are kindly asked and an interest in their business shown, will accord the generous support they deserve. I would simply say, therefore, as an agriculturist myself, and as a man very largely interested in the horse business,—I would like to see that business receive the full consideration and recognition from the Government of the day. Personally I shall be pleased if, on my part, I am able to do anything on behalf of the horse interests of the country and to enable it to prosper to a greater extent in the future than in the past. (Applause.)

Mr. Galbraith, of Wisconsin, one of the judges said: While I am on my feet I want to add my word of testimony to what has been said in appreciation of the great work that has been done by these Canadian breeders and exhibitors in the United States. I happen to have perhaps a little more intimate acquaintance with the work than a good many of you, and, coming as I do, from the other side, I think that my testimony will be at least as disinterested, or perhaps more so, then the rest. I well remember the time that Mr. Beith showed his Hackneys at the World's Fair, Chicago, in 1893, and the sensation he made. I don't say they were the greatest hackneys in the world, but they were the greatest ever seen in Chicago up to that time. I think the manner in which they had been fitted and schooled was what attracted general attention in the showing. Mr. Stephens of Utica, New York, bought one of them, and from that went into breeding hackneys on a large scale, and sent across to England for the best he could get regardless of cost. Mr. Beith entered into partnership with Mr. Stephens, but for Mr. Wiley's schooling and showing of these horses they would not have won the champion honors which they did. Later on Mr.

Beith entered the field against Mr. Stephens and the other millionaires, and downed them all. In regard to Messrs. Crow and Murray's hunters and carriage horses, and also Mr. Pepper's, I have seen them exhibited time and time again at New York, Philadelphia and elsewhere, and I never saw them get any more than justice. I have seen them win many blue ribbons, and they were entitled to them all. When we come to Clydesdales, Graham Bros. is the greatest firm on the continent. (Applause.) The honors they have won in Chicago and elsewhere are well merited. I consider it a very great compliment to ask a man, as you have me, to come so far to act as a judge here. I like to come for three reasons: First, in Toronto you mingle with a lot of such jolly good fellows; second, because I see as I always see so many first-class horses well shown and well fitted; and, in the third place, you meet men as exhibitors who, while they rival each other and try to win prizes away from each other, have enough good sense and intelligence to know when they are beaten, and are willing to come again and try. Something was said to-night of the advantages of Canada as a horse-raising country. I can hardly agree with you. While Canada is all right I do not see where it has any advantage over the United States. It may in one respect, in that you do not use corn in feed; you have better oats than we have, and you use that exclusively in feeding; whereas in the central and southern States we use corn. Your winter is a little bit longer, but your climate is not better adapted. The secret of your success is "The man behind the gun." It is the skill and persistency that stands them in such good stead when they enter into competition with the best in the world.

Dr. Rutherford, of Ottawa, said in part: I am glad to add my little quota to the appreciation which has this evening been shown to the gentlemen who have so valiantly carried the banner of Canada for Ontario in the great republic to the south of the line, and have shown our American friends the class of horses and the class of men behind them that we have in this northern country. (Applause.) But even the best of the men behind the gun get paralyzed when their horses are under the weather, and you have occasionally to call upon the much-joked-about and despised veterinary to pull them through. A very great deal depends upon the veterinary sanitary service of this country. In order that the horses might be maintained in good health, and that the spread of contagious diseases not only among horses but other animals might be kept in check, and we are doing all we can for the protection of public services at Ottawa in order that there shall be no devasting epizootics among our horses. (Applause.) It was that little school boy essay "The horse is a noble animal. He is provided with four legs, one at each corner." that first directed my attention to the horse, and that was a great many years ago. My father was a most respected Presbyterian minister, and he looked upon horse doctors as being rather a doubtful class in the community. He refused point blank to allow me to enter the Royal College of Veterinary Surgeons, but I had discovered that there was an Agricultural College at Guelph. That was in 1875, and those of you who were old enough will recollect that the reputation of that institution was not quite so well established at that time as at the present. However, I induced my father to allow me to come out to this country, and I used the Agricultural College as a means to an end, and my worthy friend here (Dr. Smith) happened to come there and ask me a question or two about the circulation of the blood and one or two other things, and invited me to Toronto. He met me with a carriage and pair, and took me around to the best stables in the town, and confirmed my resolution to become a veterinary. (Applause.) In the far western part

of the Dominion I have been doing what little I could on behalf of horses and horse-breeding. For five years I was President of the Horse Breeders' Association of Manitoba and the North West Territories, and, while discussing the question of legislation to-night, it has been entirely overlooked that the first legislation of this nature, at least of which I have any knowledge was introduced by myself in the Legislature of Manitoba some eleven years ago. This was the Horse Breeders' Lien Act, which now stands on the Statute Book of that Province, and which has been in active operation ever since. There have been Acts passed in the North West Territories and Ontario modelled on exactly the same lines but which have been lost sight of owing to the lamentable circumstances, now rapidly being overcome, that Canada is so large that the people of one Province are not always quite aware of what is going on in the other. (Applause.)

After a compliment to Dr. Smith as the right man in the right place as President of the Association, Dr. Rutherford went on to say: While horses in this country are very good, there is a great deal of room for improvement. Our horse breeders deserve a great deal of credit for what they have done, but there are some lines in which they are woefully lacking, and I claim that they have been exceedingly short-sighted in allowing a very large number of their best breeding stock, not only male but female, to be drafted over to the United States and other countries. We have had a number of high-grade mares of different breeds, but principally heavy draught, go to the United States. If we had kept our good mares in this country, the horse-breeding industry in Ontario would have been in an infinitely better position at the present time than it is. Dr. Smith said to me this evening, *sotto voce*, that it would never pay farmers in this country to breed remounts for the British Army. I say we are breeding a lot of light-legged stock in this country that we would be better without, and which, after getting them up to four or five years of age, are dear at $40 or $50 a piece. We might just as well breed a lot of good light-legged stock as poor. If we are going to breed light-legged horses, let us breed horses of market value. The best of them will always be in demand, as you know. If we are going to breed the proper style for the British army, we should do so rather than breed the miserable nondescripts that we have at the present time. (Applause). I think that no Association in the whole country is more deserving of credit and support and appreciation than the Horse Breeders' Association. I can say therefore that if at any time I can be of use, directly or indirectly, to this Association, I shall be only too glad to give you my best efforts. (Applause.)

Professor G. E. Day, Guelph: With other speakers I join most heartily in congratulating the gentleman whom we are honoring to-night. I would take exception however to a remark I heard dropped, and that is "Here's to the lucky horsemen." Now I do not think that we have a lucky horseman here, but we certainly have here the successful horsemen. The element of luck has been entirely absent, and as I said before they have attained the position they have attained by hard, persistent effort and most indomitable perseverance and courage, and it is just that kind of men we could be and are proud to do honor to. (Applause.)

Mr. Richard Gibson, Delaware: I really feel proud to be here, and congratulate these gentlemen upon their successes that they have attained in the United States. Probably I am one of the oldest attendants at these shows. I think there are very few men in this room who have been able to take these men by the hand as I have done at the various shows they have attended, and I have done so with a great deal of pleasure. And while I have congratulated these men away from home on a great many occasions,

I am proud to be here to-night to add my little testimony to what they have done, because I have seen the performances, and I have seen what they have had to contend with. (Applause.)

Mr. Bartley, a Canadian who has lived in Chicago for the last twenty-five years, spoke briefly of the pleasure experienced by him in the success of his fellow-Canadians at Chicago.

Major Hendrie, Hamilton: I am sure it gives me great pleasure to be with you to-night. Its also affords me double pleasure to meet the breeders who come from a long distance all over Ontario. I have met quite a number of them in my annual visits when I purchase for the firm, and I have always found them a very up-to-date, intelligent body of men. As regards the heavy horse, to which perhaps I give the most attention, I quite agree with some remarks that have been passed by our worthy friend, Dr. Rutherford of Ottawa. It has been my pleasure in years gone by to have purchased a very large number of horses of all kinds. It is close on fourteen years since I first started and purchased a large number of horses, and went over to the Old Country with them, and sold them to the Imperial Government for army purposes. Now, my opinion is that it does not pay to breed army remounts. You will get quite enough army remounts; there will be quite enough misfits when you are striving to breed the best, and you should always try to breed from the very best stock. You will get plenty of poor ones without trying to breed them. (Applause.)

This concluded the speech-making, and the gathering dispersed after singing the National Anthem.

THIRD ANNUAL CANADIAN CLYDESDALE AND SHIRE SHOW.

The third annual Canadian Clydesdale and Shire Show, which was held in "The Respository," Toronto, on February 1st, 2nd, and 3rd, 1905 went off most successfully in every way, the attendance being largely in excess of the previous shows, and it was found necessary to erect a tier of elevated seats to enable every one to see the animals in comfort. While the entries were rather fewer than last year, the number present was in excess, because in 1904 the railways being blockaded with snow prevented a large number of horses being present. This year some of our well known exhibitors were not out, notably Graham Bros., and J. B. Hogate, the former had sold out too closely, and the latter's importation from Great Britain did not arrive in time to make their entries.

As regards the quality of animals present it was well up to the average, and some of the Clydesdale classes gave the judges some trouble before the winners were placed. None of the exhibitors had a monopoly of the prizes, which were distributed very evenly. There were a nice lot of geldings shown. The heating arrangements of the ring inaugurated by the new proprietors, Messrs. Burns & Sheppard, enabled the spectators to watch the judging in comfort in spite of the very cold weather.

The judges for Clydesdales were: A. Galbraith, Janesville, Wis., and John A. Boag, Raveshoe. For Shires: A. Galbraith, Janesville, Wis., and Jas. Henderson, Belton.

PRIZE LIST.

Clydesdale Stallions, foaled previous to January 1st, 1901.

1st. Baron Gartly (imp.) [4789] (11601), bay, face and legs white; foaled May 24, 1900; bred by And. Dewar, Arnprior, Port of Monteith, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Casabianca [4845] (10523); dam Queen of Arnprior [6256] (14189), by Royal Gartly [2859] (9844).

2nd. Cawdor Cup (imp.) [4087] (10045), bay, star and snip, hind fetlocks white; foaled April, 1894; bred by Earl of Cawdor, Nairn, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Prince of Kyle (7155); dam Lady Lawrence [5005] (9476) by Prince Lawrence [2861].

3rd. Merryman [3256], bright bay, white face, four white feet; foaled June 2, 1900; bred by Peter Davidson & Sons, Fergus, Ont.; exhibited by Goslin Bros., Lindsay, Ont.; sire Gay Prince (imp.) [2470] (10759); dam Leoline [2457] by Grandeur (imp.) [1724] (6814).

4th. Baron's Heir (imp.) [5037] (11605), dark brown, white ratch on face, hind legs white; foaled June 10, 1900; bred by Earl of Strathmore, Glamis Castle, Scotland; imported by O. Sorby, Guelph, Ont.; exhibited by Campbell B. Gibson, Arthur, Ont.; sire Benedict [3664] (10315); dam Pride of Glamis [6640] (14062) by Mains of Aries [2865] (10379).

5th. Prince of Scotlandwell (imp.) [4257] (11860), brown, white face, three white legs; foaled June, 1900; bred by Wm. Gay, Newbigging, Perthshire, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Prince of Johnstone (9986); dam Olga (15051) by Grampian (6813).

6th. St. Patrick [2303] 8648, light bay, stripe on face, four white legs; foaled April 27, 1897; bred by N. P. Clarke, St. Cloud, Minn.; exhibited by McKinnon & Co., Erin, Ont.; sire Prince Patrick (imp.) [2266] 6773 (8993); dam Miss Stanley (imp.) [2307] 5877 by Stanley Prince (imp.) [2265] 3971 (6315).

7th. Springfield Chief (imp.) [4794] (11953), dark bay, ratch, little white on off fore foot, hind feet white; foaled May 6, 1900; bred by M. B. Nairn, Rankeilour, Springfield, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Mayfield Chief [3599] (10234); dam Polly of Rankeilour [5962] (15203) by Garnet Cross (1662).

8th. General Bobs [2603], bright bay, stripe in face, four white feet; foaled June 20, 1898; bred by E. W. Charlton, Duncrief, Ont.; exhibited by Ambrose Lewis, Ringwood, Ont.; sire Marquis of Salisbury (imp.) [1909] (5208); dam Lady Wigtown [2680] by Wigtown Lad (imp.) [552] (5441).

Clydesdale Stallions, foaled in 1901.

1st. Censor (imp.) [4963] (12090), bay, ratch on face, off fore foot and both hind feet white; foaled June 16, 1901; bred by John J. Mowbray, Naemoor, Rumbling Bridge, Scotland; imported and exhibited by O. Sorby, Guelph, Ont.; sire Cawdor Cup [4087] (10045); dam Mono 2nd [6546] (14731) by Prince of Cathcart [3924] (8915).

2nd. Royal Flush (imp.) [4790] (11906), bay, blaze, white legs; foaled June, 1901; bred by Robt. Buchanan, Lettre, Killearn, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Casabianca [4843] (10523); dam Darling of Lettre [6255] by Flashwood's Prince [4844] (10751).

3rd. Royal Dean (imp.) [4792] (12323), black, white on face, four white legs; foaled June, 1901; bred by D. Jamieson, Roundbush, Dornock, Annan, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire The Dean [4035] (10957); dam Fair Helen [6241] (15585), by Lord Lothian [3515] (5998).

4th. Wigtown Life Guard (imp.) [4780] (Vol. 27 S.), dark bay, ratch, three white pasterns; foaled June 9, 1901; bred by A. McLelland, Glenturk, Wigtown, Scotland; imported by Dalgety Bros., London, Ont.; exhibited by Potter & Hastings, Tottenham, Ont.; sire Labori [4970] (10791); dam Mary of Glenturk [4024] (12545) by Top Knot [3439] (6360).

5th. Bogside (imp.) [4291] (11634), brown, white stripe on face, hind legs white; foaled June 12, 1901; bred by Geo. McGill, Bogside, Longbank, Renfrewshire, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Clan Chattan (10527); dam Bell by Sir Everard (5353).

6th. Baron Nonpareil (imp.) [5003] (Vol. 24, p. 144, S.), brown, stripe, near fore ankle and off hind leg white; foaled July 6, 1901; bred by John Gray, Fyvie, Aberdeenshire, Scotland; imported and exhibited by W. J. Isaac, Harwood, Ont.; sire Prince Thomas [4029] (10262); dam Princess Mary [6599] (14599) by Prince of Fortune (9826).

7th. King o' the Ferry (imp.) [4763] (12196), bay, face and legs white; foaled May, 1901; bred by Thos. Hunter, Mark, Creetown, Scotland; imported by H. Montgomery, Drayton, Ont.; exhibited by G. B. Montgomery, Drayton; sire Prince Attractive [3625] (10250); dam Grace Darling of Mark [6141] (14255) by Knight of Lothian [3626] (4489).

Clydesdale Stallions, foaled in 1902.

1st. Knight of Glamis (imp.) [5029] (Vol. 27 S.), bay, broken ratch, near fore foot white, off fetlock white, and both hind legs white; foaled May 23, 1902; bred by Earl of Strathmore, Glamis Castle, Glamis, Scotland; imported and exhibited by Dalgety Bros., London, Ont.; sire Mercutio [5028] (11431); dam Lady Montrose [6633] (12672) by Lord Montrose [3567] (7973).

2nd. King of Peace (imp.) [4957] (Vol. 27 S.), bay, white face, little white on off fore leg, near fore foot and both hind legs white; foaled May 30, 1902; bred by Thos. H. Clark, Drybrugh, Castle Douglas, Scotland; imported by John A. Turner, Calgary, Alta., exhibited by O. Sorby, Guelph, Ont.; sire King of the Roses [3495] (9927); dam Clarinda [6534] (14976), by Baron's Pride [3067] (9122).

3rd. Baron Black (imp.) [4788] (12021), black, face and hind legs white; foaled July [illegible], 1902; bred by A. & W. Montgomery, Netherhall & Banks, Kirkcudbright, Scotland, imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Baron's Pride [3067] (9122); dam Woodbine [4686] (13222) by Flashwood [3604].

4th. Barlae (imp.) [5006] (12017), bay, stripe, four white legs; foaled June 16, 1902; bred by W. A. McTurk, Barlae, New Galloway, Scotland; imported by John A. Turner, Calgary, Alta.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Ornament [3421] [illegible]; dam Flirt [5662] (13176) by Williamwood [3439] (8391).

5th. Glenlivet (imp.) [4787] (12165), bay, white face, near legs white; foaled June 4, 1902; bred by Robt. Turner, Cairnton of Boyndie, Portsoy, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Montrave Sentinel [3475] (10194); dam May Montrose [3866] (13646) by Lord Montrose [3568].

6th. Kilmory (imp.) [4960] (Vol. 27 S.), bay, face and legs white; foaled June 26, 1902; bred by Jas. McAlister, Meikle, Kilmory, Scotland; imported and exhibited by O. Sorby, Guelph, Ont.; sire Springhill Baron [4959] (10652); dam Rosey of Kilmory [6538] (15624) by MacVinnie [4387] (9318).

7th. Royal Stevenson (imp.) [4922] (Vol. 27 S.), dark bay, blaze, white fore feet; off hind foot white; foaled 1902; bred by Matthew Stevenson, Lilburn, Bishopton, Scotland; imported and exhibited by T. H. Hassard, Millbrook, Ont.; sire Sir Hugo [3923] (10924); dam Jean by Esquire of Park [4345] (7699).

Clydesdale Stallions, foaled in 1903.

1st. Erskine Keir [4760], light bay, face and hind legs white; foaled June 25, 1903; bred and exhibited by John Vipond, Brooklin, Ont.; sire Royal Keir (imp.) [4208] (10881); dam Kate Erskine [3431] by Erskine (imp.) [1652] (4986).

2nd. Leamside (imp.) [5015] (Vol. 27 S.), brown, white face, near fore and hind legs white, little white on off fore ankle; foaled May 24, 1903; bred by W. Topham, Jr., Woodside Farm, Leamside, England; imported by John A. Turner, Calgary, Alta.; exhibited by Andrew Aitchison, Guelph, Ont.; sire Sir Thomas [4029] (9681); dam Princess Macgregor [6619] (13892) by Macgregor (1487).

3rd. Prince Druid (imp.) [4786] (Vol. 27 S.), brown, face and legs white; foaled May, 1903; imported by Smith & Richardson, Columbus, Ont.; exhibited by John Palmer, Richmond Hill, Ont.; sire Baron Mitchell (10688); dam Katrine [4412] (10635) by Stonehenge (4039).

4th. Erskine Lynedoch [4761], dark bay, ratch, near hind leg white; foaled May, 1903; bred and exhibited by John Vipond, Brooklin, Ont.; sire Lord Lynedoch (imp.) [3004] 4113 (4530); dam Jess Erskine [4768] by Erskine (imp.) [1652] (4986).

Clydesdale Mares, imported, and those tracing to imported mares, foaled previous to January 1st, 1902.

1st. Madge of Hallcroft (imp.) [4776] (Vol. 24 S.), brown, star and small ratch, three white feet; foaled May 16, 1901; bred by Maxwell C. Muirhead, Hallcroft, Dalbeattie, Scotland; imported in 1903 by Smith & Richardson, Columbus, Ont.; exhibited by A. G. Gormley, Unionville, Ont.; sire Ornament [3421] (10603); dam Ursula [4860] (13985) by Flashwood's Best [3534] (9211).

Clydesdale Mares, imported, and those tracing to imported mares, foaled on or subsequent to January 1st, 1902.

1st. Miss Gilmour (imp.) [4457] (Vol. 25, p. 32, S.), light brown, face, fore pasterns and near hind leg white, half of off hind foot white; foaled May 24, 1902; bred by W. P. Gilmour, Balmangan, Scotland; imported by O. Sorby, Guelph, Ont.; exhibited by And. Aitchison, Guelph, Ont.; sire Baron's Pride [3067] (9122); dam Missie of Balmangan [4460] (14226) by Lord Erskine [3603] (1744).

2nd. Lady Aberdeen (imp.) [6166] (Vol. 27 S.), light bay, face and three legs white; foaled May 28, 1902; bred by P. McWilson, Muirside, Holywood, Dumfries, Scotland; imported and exhibited by Smith & Richardson, Columbus, Ont.; sire Carbineer [4030] (10522); dam Beauty [6246] (Vol. 27 S.), by Prince of Balmanno [2877] (9976).

3rd. Queen of Maple Grove [6059], bay, one white hind foot and strip on face; foaled June 27, 1903; bred by R. Stewart, Winfield, Ont.; exhibited by A. G. Gormley, Unionville, Ont.; sire Fullerton (imp.) [2370] (9910); dam Riverside Corinne [2957] by Macmurchie (imp.) [2971] (8014).

Canadian Bred Clydesdales or Shire Stallions, foaled previous to January 1st, 1903.

1st. Cairnton's Best [3967], bay, stripe, four feet white; foaled June 24, 1902; bred by H. F. Werry, Oshawa, Ont.; exhibited by Smith & Richardson, Columbus, Ont.; sire Royal Cairnton (imp.) [2730]; dam Nellie Thistle [3379] by The Thistle (imp.) [1249] (7342).

2nd. Prince Lochnagar [3892], bay, off fore and both hind feet white; foaled April 28, 1900; bred by H. T. Appleton, Carrville, Ont.; exhibited by Jos. E. Teeson, Newtonbrook, Ont.; sire Young Macqueen [2290]; dam Rose Richmond [4601] by Richmond (imp.) [338] (4666).

3rd. Prince Barnes [5000], bay, stripe, near hind foot white; foaled April 29, 1902; bred and exhibited by Wm. Hepburn, Foley, Ont.; sire Prince Patrick (imp.) [2266] 6773 (8933); dam Lady [2577] 4431 by Monkbarnes (imp.) [254] 3310 (1492).

4th. Pride of Lynedoch [4187], bay, stripe, hind feet white; foaled July 8, 1902; bred and exhibited by John Stark, Columbus, Ont.; sire Lord Lynedoch (imp.) [3004] 4113 (4530); dam Fan of Columbus [5275] by Goldfinder (imp.) [714] (3661).

5th Golden Conqueror [4251], chestnut, white face and feet; foaled July 27, 1902; bred and exhibited by A. Doherty, Ellesmere, Ont.; sire Cloth of Gold [2959] 8962; dam Daisy Belle [2596] by Bruce (imp.) [1595] (8496).

6th. Macqueen's Best [3323], bay, stripe, four white feet; foaled April 29, 1902; bred and exhibited by J. W. Cowie, Markham, Ont.; sire Macqueen (imp.) [462] 3513 (5200); dam Fanny Redmond [2530] 7748 by Brown James (imp.) [731] 7044 (5595).

7th. Prince of Hillend [5036], brown, white face, both hind feet white; foaled June 28, 1902; bred and exhibited by Geo. Hepburn, Columbus, Ont.; sire Prince Patrick (imp.) [2266] 6773 (8933); dam Bloom [6638] by Tannahill (imp.) [1205] (4745).

Canadian Bred Clydesdale or Shire Stallions, foaled on or subsequent to January 1st, 1903.

1st. Sir Hector [4141], bay, stripe, four white legs; foaled May 7, 1903; bred and exhibited by T. A. Wood, Bradford, Ont.; sire Harmony (imp.) [2951] (10772); dam Minnie W. [5158] by Grand Times (imp.) [363] (3670).

2nd. Pride of Wexford [5039], bay, white star, both fore feet and off hind foot white; foaled May 18, 1903; bred and exhibited by Gooderham Bros., Wexford, Ont.; sire Lyon Macgregor (imp.) [2308] (10376); dam Florence [6643] by Rob the Ranter (imp.) [429] 1168 (1803).

Canadian Bred Clydesdale or Shire Mares, foaled previous to January 1st, 1902.

1st. Lemonville Maud [1694], dark bay; foaled April, 1891; bred by Macklem Cook, Lemonville, Ont.; exhibited by Gooderham Bros., Wexford, Ont.; sire Prince James (imp.) [941] 7129); dam Cindy (560) by Heart of Oak (imp.) [165] 404 (488).

Canadian Bred Clydesdale or Shire Mares, foaled on or subsequent to January 1st, 1902.

1st. Miss Corsewell [6678], bay, white face and white hind leg; foaled May, 1903; bred by A. Weatherspoon, Humber, Ont.; exhibited by J. M. Gardhouse, Weston; sire Corsewell's Grandson (imp.) [3045] (8544); dam Net Derby [2848] by Lord Derby (imp.) [37] 1067 (1742).

Shire Stallions, foaled previous to January 1st, 1902.

1st. Sand Boy (imp.) [386] (21832), bay, white on face, one fore and both hind legs white; foaled 1901; bred by John Harrison, Sand Villa, Cockerham, Garstang, England; imported by Bawden & McDonell, Exeter, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Shore Side (19125); dam Kate (42348) by Sir James 2nd (6393).

2nd. Chewton Prince Harold 3rd (imp.) [377] (20343), bay, star, white hind fetlocks; foaled 1899; bred by G. F. King, Chewton, England; imported by J. M. Gardhouse, Weston, Ont.; exhibited by Potter & Hastings, Tottenham, Ont.; sire Prince Harold (14288); dam Chewton Violet (26541) by Normoor Black Prince (12015).

3rd. Coleshill Royal Albert (imp.) [383] (20367), black, white face, four white legs; foaled in 1901; bred by the late Walter Done, Cawarden Springs, Rugeley, England; imported by S. G. Mackaness, Abingdon Lodge, Northampton, England; exhibited by John Gardhouse & Sons, Highfield, Ont.; sire Moorland Paxton (16259); dam Stenson Duchess (7114) by Royal Albert (1885).

4th. Victoria Bobs [313], bay, star in forehead, hind feet and near fore feet white; foaled July 1st, 1900; bred and exhibited by Galbraith Bros., Orangeville, Ont.; sire C. A. (imp.) [220] (11109); dam Topsy Mirfield [152] by Mirfield Merchant (imp.) [236] (7766).

Shire Stallions, foaled subsequent to January 1st, 1902.

1st. Blagdon Majestic (imp.) [413] (Vol. 26 E.), brown, white face, white hind feet; foaled in 1903; bred by Clement Keevil, The Home Farm, Billington, Bedfordshire, England; imported and exhibited by H. George & Sons, Crampton, Ont.; sire Childwick Majestic (17254); dam Chant of Batsford (23281) by Menestrel (14180).

Shire Mares, foaled previous to January 1st, 1902.

1st. Laura [112], bay, stripe on face, near front and both hind legs with white stockings; foaled May 1, 1896; bred by Morris, Stone & Wellington, Fonthill, Ont.; exhibited by John Gardhouse & Sons, Highfield, Ont.; sire Pride of Hatfield (imp.) [256] (13103); dam Daisy [82] by Chieftain 2nd (imp.) [194] (5723).

2nd. Besor (imp.) [205] (34810), brown, white blaze, white hind stockings; foaled 1899; bred by J. Chambers, Holdenby, Northampton, England; exhibited by J. M. Gardhouse, Weston, Ont.; sire Catthorpe Disraeli (13952); dam Rhewlas Stout (17276) by Gatterlop Samson (5063).

Shire Mares, foaled on or subsequent to January 1st, 1902.

1st. Lady Luetta [192], bay, star, hind ankles white; foaled May 6, 1903; bred by Morris & Wellington, Fonthill, Ont.; exhibited by J. M. Gardhouse, Weston, Ont.; sire Mars (imp.) [275] (17103); dam Louise [172] by Pride of Hatfield (imp.) [256] (13103).

Stallion Colts, either imported Clydesdales, Canadian bred Clydesdales, imported Shires or Canadian bred Shires, foaled subsequent to or on January 1st, 1904.

1st. Rival Duke [395] (Shire), bay, with star; foaled April, 1904; bred and exhibited by John Gardhouse & Sons, Highfield, Ont.; sire Newnham Duke (imp.) [343] (19893); dam Laura [112] by Pride of Hatfield (imp.) [256] (13103).

2nd. Macqueen of Craigie Lea [4944], bay, stripe, one fore foot white, hind legs white; foaled May 24, 1904; bred and exhibited by H. J. Spenceley, Box Grove, Ont.; sire Macqueen (imp.) [3513] (5200); dam Evening Star [4471] by Fintry Star (imp.) [1381] 3412 (7711).

3rd. Stately Boy [4943], light bay, stripe, nigh front and two hind legs white; foaled May 26, 1904; bred and exhibited by H. J. Spenceley, Box Grove, Ont.; sire Stately City (imp.) [3362] (10466); dam Polly Macarlie [4472] by Macarlie [2464] (8782).

Championship—Clydesdale Stallion, any age, imported or Canadian bred.

1st. Baron Garvly (imp.) [4789] (11601); exhibited by Smith & Richardson, Columbus, Ont.

Championship—Clydesdale Mare, any age, imported or Canadian bred.

1st. Miss Gilmour (imp.) [4457]; exhibited by And. Aitchison, Guelph, Ont.

Championship—Shire Stallion, any age.

1st. Sand Boy (imp.) [386]; exhibited by J. M. Gardhouse, Weston, Ont.

Championship—Shire Mare, any age.

1st. Laura [112]; exhibited by John Gardhouse & Sons, Highfield, Ont.

Geldings, three years old and over, to be sired by either a registered Clydesdale or Shire stallion, who must be named. Given by the Dominion Government.

1st. Bobbie Burns, chestnut; foaled in 1901; exhibited by Alex. Doherty, Ellesmere, Ont.; sire Macarlie [2464] 8782.

2nd. Prince Arthur, bay, white face and four white feet; foaled April 25, 1901; exhibited by John W. Cowie, Markham, Ont.; sire Montrave Chief (imp.) [537] (5222).

3rd. Charlie, bay, two white hind legs and white face; foaled May 20, 1901; exhibited by John W. Cowie, Markham, Ont.; sire Royal Huntly (imp.) [2432] (10632).
4th. King, exhibited by D. McKinnon & Sons, Coningsby, Ont.; sire Prince Edward [1880].
5th. Robin Bruce, dark bay, two white hind legs and white face; foaled May 10, 1901; exhibited by John W. Cowie, Markham, Ont.; sire The Royal Standard (imp.) [2220] (10014).

Heavy Draught Team, in harness, geldings or mares, to be sired by registered Clydes or Shires. Animals competing in other sections not eligible.

1st. Lady Sally (imp.) [4774], br. m., white face, white on legs; sire The Dean [4033] (10937); Miss Wilson (imp.) [14775], br.m., white face, white on legs; sire King of Kyle [3662] (10213); exhibited by Smith & Richardson, Columbus, Ont..
2nd. Scottie, bay, three legs and face white; foaled in 1901; sire Maplewood Lad; Charlie, bay, face and four legs white; foaled in 1901; sire Lord Charming [2264] 7564; exhibited by W. W. Young, Binkham, Ont.

LIST OF MEMBERS OF THE CANADIAN HORSE BREEDERS' ASSOCIATION, 1904.

Name.	Address.
Archibald, C. A.	Truro, N.S.
Attrill, E. C.	Goderich, Ont.
Barnhardt, D. M.	62 College St., Toronto
Boeckh, Chas.	York St., Toronto.
Beith, R.	Bowmanville, Ont.
Barbour, J. W.	112 Doverc'rt Rd., Toronto.
Boag, John A.	Ravenshoe, Ont.
Barron, Robt., Jr.	728 Yonge St., Toronto.
Boag, H. G.	Barrie, Ont.
Barron, Geo.	728 Yonge St., Toronto.
Biggins, W. J.	Clinton, Ont.
Bond, Robt.	19 Sheppard St., Toronto.
Campbell, E. T.	41 Major St., Toronto.
Christie, P., M.P.	Manchester, Ont.
Cox, E. W.	Canada Life, Toronto
Clow, T.	619 Yonge St., Toronto.
Davies, R. W.	Todmorden, Ont.
Davidson, John	Ashburn, Ont.
Delamere, Col. J. M	Parliament Bldg., Toronto.
Davies, Geo. T.	Toronto.
Davies, R.	Toronto St., Toronto.
Dixon, J. J.	Canada Life B'g, Toronto.
Edwards & Co., W. C	Rockland, Ont.
Fuce, O. J.	Grand's Repository, Toronto.
Fuller, S. B.	Woodstock, Ont.
Graham, R.	Claremont, Ont.
Gibson, R. J.	Toronto.
Good, H. J. P.	11 Ann St., Toronto.
Graham, Wm.	Claremont, Ont.
Graham, Thos.	Claremont, Ont.
Garrett, Bruff	Sovereign Bank, Montreal, Que.
Gardhouse, John	Highfield, Ont.
Gardhouse, J. M.	Weston, Ont.
Gibson, Richard	Delaware, Ont.
Henderson, Jas.	Belton, Ont.
Hall, Dr. J. B.	326 Jarvis St., Toronto.
Hodgkinson & Tisdale	Beaverton, Ont.
Hodson, F. W.	Ottawa, Ont.
Hendrie, Wm., Jr.	Hamilton, Ont.
Isaac, John	Markham, Ont.
Irving, Thos.	Winchester, Ont.
Johnston, Arthur	Greenwood, Ont.
Knowlton, T. E.	152 Wellesley Cr., Toronto.
Lundy, C. E.	Newmarket, Ont.
Lynd, Dr. A.	33 Melbourne Av., Toronto.
Morris & Wellington	Fonthill, Ont.
Mossop, Wm.	St Mary's, Ont.
McMurray, G.	Yonge St., Toronto.
McBride, S.	249 Bathurst St., Toronto.
McMillan, Thos.	Seaforth, Ont.
McMillan, J. A. S.	Brandon, Man.
Ness, R.	Howick, Que.
Oille, Dr. J. L.	599 Yonge St., Toronto.
Pepper, Geo.	253 Huron St., Toronto.
Pattison, T. C.	East Toronto.
Robertson, Major	Toronto.
Rombough, M. A.	77 Grenville St., Toronto.
Russell, H.	Weston, Ont.
Robertson, J. Ross	Telegram Bldg., Toronto.
Raikes, Geo.	Barrie, Ont.
Richardson, F.	Columbus, Ont.
Robinson, H. M.	Care Rice Lewis Co., Toronto.
Smith, J. H.	Grand's Repository, Toronto. [Toronto.
Sheppard, O. B.	Toronto.
Smith, Wm.	Columbus, Ont.
Spark, W. S.	Ottawa, Ont.
Torrance, Jas.	Markham, Ont.
Talbott, H.	Doncaster, Ont.
Vipond, John	Brooklin, Ont.
Wilkie, Wm.	Toronto.

ELEVENTH CANADIAN HORSE SHOW.

The record of an exhibition held year after year in any one place is very apt to present a series of ups and downs as regards its success from the point of view of the exhibits and a successful balance sheet. This, however, cannot be said to be the case with the Canadian Horse Show, which each year shows not only a great advance in the number and quality of the horses shown, but also, what is a most striking and important point, an ever increasing interest in the Show on the part of those who attend it. The number of automobiles in the country may be increasing, but the devotees to the horse, far from falling off in numbers, are also steadily increasing.

The dates for the eleventh annual Canadian Horse Show were April 26th, 27th, 28th, and 29th, 1905, and it was held in the Armouries, the only building in Toronto that can accommodate a show of this size. It is rumored, however, that the military authorities are not likely to permit the use of this building after 1906. This will mean that an arena will have to be built. It will be well for the Horse Show Committee to give their earnest attention to this matter, for with the Armouries refused to them, no Horse Show could be held in Toronto. As the Show has proved to be such a valuable educational factor to horse breeders and owners in the past, the absence of the opportunity to show their horses would mean a serious loss to them in every way.

The total entries amounted to several hundred more than last year. This was partly due to the increased number of classes (amongst these being several for amateurs only, which were well filled), but also to the greater number of entries in all classes. The banner class for entries was that for jumping, open to all, in which no less than 41 horses were entered. Many of the other classes numbered from 20 to 30 entries, and it was hard to find any weak classes. There were really sufficent events for a five days' show and it was only by clever management that the Committee completed the programme in the four days.

The prize list was a most generous one, and contained many cups and pieces of plate, some of these being presented by interested horse lovers in Toronto. Prominent amongst these must be mentioned the King Edward Hotel Challenge Cup, which was offered for the best high stepper, sired by a stallion of any breed.

Special mention must be made of the Hackney display, which was the largest and best ever seen in Canada, Graham Bros.' Whitewall Fashion, which won first in the aged class, capturing the hearts of the audience. The special display by A. Yeager, of Hillhurst Sensation and ten of his get was also an interesting sight. Thoroughbreds and Standardbreds were up to the average and the display of heavy teams and singles was excellent, the Harness and Saddle classes contained a full list of the best to be found, and Polo and other ponies were specially good. In the jumping class the winner cleared 6 feet 6 inches. The display of Hunt Club teams of three has never been equalled on the continent.

His Excellency the Governor General, Earl Grey, showed his interest by opening the Show and being present on several occasions. He also kindly continued his predecessor's prize of a silver cup and money for the best four year old Canadian-bred gelding or mare suitable for cavalry or riding purposes.

PRIZE LIST.

THOROUGHBREDS.

Judge: J. G. Rutherford, V.S., Ottawa.

STALLIONS FOALED PREVIOUS TO JAN. 1, 1902.

1st. Orme Shore, chestnut; foaled in 1901; exhibitor, Robt. Davies, Toronto; sire Orme; dam Virginia Shore.
2nd. Kapanga Colt, chestnut, 15.2¾, aged; exhibitor, Dr. Andrew Smith, Toronto; sire, Spendthrift (imp.); dam Kapanga.
3rd. Bill of the Play 27909, bay, 15.1½; foaled in 1901; exhibited by Messrs. Barbour, Toronto; sire Billetto; dam Souvenir.

STALLIONS QUALIFIED TO IMPROVE THE BREED OF SADDLE HORSES AND HUNTERS.

1st. Gold Car, chestnut, 16.1; foaled in 1896; exhibitor, Wm. Hendrie, Hamilton; sire Goldfinch (imp.); dam Carina.
2nd. Dalmoor, bay, 16.1; foaled in 1894; exhibitor, E. Whyte, Hamilton; sire Louis 13th; dam Lady Dalmeny.
3rd. Ben Carrick, golden bay, 16; foaled in 1899; exhibitor, Allan Kemp, Oakville; sire Ben Strome (imp.); dam Hanoletta (imp.).

SWEEPSTAKES—BEST THOROUGHBRED STALLION, ANY AGE.

1st. Orme Shore; exhibitor, Robt. Davies, Toronto.

SWEEPSTAKES—BEST STALLION QUALIFIED TO IMPROVE THE BREED OF SADDLE HORSES AND HUNTERS.

1st. Gold Car; exhibitor, Wm. Hendrie, Hamilton.

STALLION, ANY AGE OR BREED, BEST QUALIFIED TO PRODUCE CARRIAGE HORSES.

1st. Whitewall Fashion (imp.) —259— (Hackney); exhibitors, Graham Bros., Claremont.
2nd. Ben Carrick (Thoroughbred); exhibitor, Allan Kemp, Oakville.
3rd. Rosseau Performer (imp.) —34— (5391) (Hackney); exhibitor, Jos. Thomson, V.S., Orillia.

STANDARD-BRED ROADSTERS.

Judges: J. Sinclair, V.S., Cannington; R. Graham, Claremont.

STALLIONS FOALED PREVIOUS TO JAN. 1, 1902.

1st. Oro Wilks 30347, bay, 15.1; foaled in 1891; exhibitor, Miss K. L. Wilks, Galt; sire Sable Wilks 8100; dam Ellen Mayhew.
2nd. Prodigal Son 33017, brown, 16; foaled in 1899; exhibitor, J. Noble, Toronto; sire Prodigal 6000; dam Eoline by Antaeus.
3rd. D. L. C., bay, 16.1; foaled in 1891; exhibitor, Simon James, Hamilton; sire Accoli 26640; dam Redwing by Toronto Patchen 24035.

STALLIONS FOALED SUBSEQUENT TO AND ON JAN. 1, 1902.

1st. Oro-Dell 36450, chestnut, 15.2; foaled in 1902; exhibitor, Miss K. L. Wilks, Galt; sire Delmarch (9789); dam Oro Fino 218.
2nd. Red Badge 36808, brown, 15.1; foaled in 1902; exhibitor, H. Raison, London; sire Red Heart 14113; dam India Turner.
3rd. Earl of Chester 26278, bay, foaled in 1902; exhibitor, Robt. Davies, Toronto; sire Dare Devil; dam Bell of Chester.

SWEEPSTAKES—BEST STANDARD-BRED STALLION.

1st. Oro Wilks 30347; exhibitor, Miss K. L. Wilks, Galt.

HACKNEYS.

Judges: R. P. Stericker, West Orange, N.Y.; Wm. West, Shelburne, Vt.

STALLIONS FOALED PREVIOUS TO JAN. 1, 1902.

1st. Whitewall Fashion (imp.) —259— (Vol. 23 E.), chestnut; foaled in 1900; bred by John D. Robinson, Steadmere, York, Eng.; exhibited by Graham Bros., Claremont, Ont.; sire Troubadour (1357); dam (10263) Marjorie.
2nd. Copalder Bonny Gabriel (imp.) —253— (8105), chestnut, blaze, white off fore and off hind legs; foaled in 1899; bred by Jas. Neville, Glassmoor, Eng.; exhibited by Truman's Pioneer Stud Farm, Bushnell, Ill.; sire Stow Gabriel (5416); dam (8778) Copalder Rose.
3rd. Warwick Paragon (imp.), —242— (8332), chestnut, star, four white stockings; foaled in 1901; bred by John Conchar, Wylde Green, Eng.; exhibited by Telfer Bros., Milton, Ont.; sire Rosador (4964); dam (11719) Cosmic.

STALLIONS FOALED SUBSEQUENT TO AND ON JAN. 1, 1902.

1st. Anticipator (imp.) —258— (8351), chestnut, white face, four white legs; foaled in 1902; bred by John Atkinson, Highfield, Garton, Eng.; exhibited by Graham Bros., Claremont, Ont.; sire Rosador (4964); dam (1423) Amelia.
2nd. Truman's Bonny Gabriel (imp.) —256— (9049), chestnut, white strip on forehead, white hind and off fore feet; foaled in 1902; bred by G. S. Johnson, Claygate, Eng.; exhibited by Truman's Pioneer Stud Farm, Bushnell, Ill.; sire Copalder Bonny Gabriel (8105); dam (15693) Claygate Rose.
3rd. Salford Roseus (imp.) —212— (Vol. 23 E.), chestnut, blaze, two white feet; foaled in 1902; bred by Col. Lees Knowles, M.P., Westwood, Pendlebury, Eng.; exhibited by J. B. Hogate, Sarnia; sire Rosador (4964); dam (2624) Charming May.

HIGH STEPPER STALLION IN HARNESS TO SUITABLE VEHICLE—TO BE SIRED BY A REGISTERED HACKNEY STALLION.

1st. Hillhurst Sensation —58—, bay, little white on off hind feet; foaled April 30, 1895; bred by Hon. M. H. Cochrane, Hillhurst, Que.; exhibited by A. Yeager, Simcoe, Ont.; sire Hayton Shales (imp.) —22— (4806); dam —16— (4371) Miss Baker (imp.).
2nd. Ivanhoe —124—, bay, near fore and hind feet white; foaled June 27, 1901; bred by R. Beith, Bowmanville, Ont.; exhibited by W. D. Woodruff, St. Catharines, Ont.; sire Squire Rickell —74— 264; dam —3— (661) Florence.

SWEEPSTAKES—BEST HACKNEY STALLION FOALED IN CANADA, GIVEN BY THE CANADIAN HACKNEY HORSE SOCIETY.

1st. Hillhurst Sensation —58—; exhibited by A. Yeager, Simcoe, Ont.

BEST HACKNEY MARE FOALED IN CANADA. PART OF PRIZE MONEY GIVEN BY THE CANADIAN HACKNEY HORSE SOCIETY.

1st. —236— Priscilla, chestnut, stripe in face; foaled May 23, 1899; bred by Rawlinson Bros., Calgary, Alta.; exhibited by Herbert A. Bruce, M.D., Toronto; sire Robin Adair 2nd (imp.) —63— (3907); dam [—171— Dorothy].
2nd. —1221— Lady Melgund, bay, white marks on front heels, hind pasterns white; foaled May, 1899; bred by Hon. M. H. Cochrane, Hillhurst, Que.; exhibited by H. J. Spenceley, Box Grove, Ont.; sire Barthorpe Performer (imp.) —52— 237 (5097); dam —121— 910 Miss Lynn.

HACKNEY MARE OR FILLY BY AN IMPORTED SIRE AND OUT OF AN IMPORTED DAM, BOTH REGISTERED IN THE ENGLISH HACKNEY STUD BOOK. SILVER MEDAL GIVEN BY HACKNEY HORSE SOCIETY OF GREAT BRITAIN.

1st. —232— 992 Viola, chestnut, stripe, near hind foot white; foaled Sept., 1897; bred by Hon. M. H. Cochrane, Hillhurst, Que.; exhibited by Thos. Early (agent), Tillsonburg, Ont.; sire Barthorpe Performer (imp.) —52— 237 (5097); dam —27— (4853) Vina (imp.)

HACKNEY STALLION OR ENTIRE COLT BY AN IMPORTED SIRE AND OUT OF AN IMPORTED DAM, BOTH REGISTERED IN THE ENGLISH HACKNEY STUD BOOK. SILVER MEDAL GIVEN BY THE HACKNEY HORSE SOCIETY OF GREAT BRITAIN.

1st. Whitewall Fashion (imp.) —259—; exhibited by Graham Bros., Claremont, Ont.

KING EDWARD PRIZE.—HACKNEY STALLION, ANY AGE.

1st. Whitewall Fashion (imp.) —259—; exhibited by Graham Bros., Claremont, Ont.

HEAVY DRAUGHTS.

Judges: R. P. Stericker, West Orange, N..Y; R. Graham, Claremont, Ont.

PAIR OF HEAVY DRAUGHT MARES OR GELDINGS, ANY BREED WHATEVER, SHOWN IN HARNESS.

1st. Prince Arthur, b.g., 4 years; Charlie, b.g., 4 years; exhibited by J. W. Cowie, Markham, Ont.
2nd. Charlie, gr.g., 16.2, 4 years; Scottie, b.g., 16.2, 4 years; exhibited by Dominion Transport Co., Toronto.
3rd. Nat, b.g., 16.2, 5 years; Prince Charlie, b.g., 16.2½, 4 years; exhibited by Wm. Hendrie, Hamilton.

SINGLE HEAVY DRAUGHT MARE OR GELDING, ANY BREED WHATEVER, SHOWN IN A CART OR WAGON.

1st. Prince Arthur, b.g., 4 years; sire Montrave Chief (imp.) [537]; Charlie, b.g., 4 years; sire
2nd. Charlie, gr.g., 16.2, 4 years; exhibited by Dominion Transport Co., Toronto.
3rd. Charlie, b.g., 4 years; exhibited by J. W. Cowie, Markham, Ont.

PAIR OF HEAVY DRAUGHT MARES OR GELDINGS, SIRED BY A REGISTERED CLYDESDALE STALLION.

1st. Prince Arthur, b.g., 4 years; sire Montrave Chief (imp.) [537]; Charlie b.g., 4 years; sire Royal Huntly (imp.) [2432]; exhibited by J. W. Cowie, Markham, Ont.
2nd. Charlie, gr.g., 16.2, 4 years; sire Lord Charming [2264]; Scottie, b.g., 16.2, 4 years; sire Maplewood Lad; exhibited by Dominion Transport Co., Toronto.
3rd. Nat, b.g., 16.2, 6 years; sire Lawers' Baron Gordon (imp.) [1005]; Prince Charlie, b.g., 16.2, 4 years; sire Lord Chancellor (imp.) [2658]; exhibited by Wm. Hendrie, Hamilton.

HEAVY DRAUGHT TEAM OF FOUR HORSES, TO BE SHOWN IN HARNESS BEFORE A SUITABLE WAGON.

1st. Charlie, gr.g., 16.2, 4 years; Scottie, b.g., 16.2, 4 years; Duchess, b.m., 16.2, 6 years; Duke, b.g., 162, 6 years; exhibited by Dominion Transport Co., Toronto.
2nd. Thistle, blk.g., 16.2, 6 years; Brown Heath, br.g., 16.2, 5 years; Prince Charlie, b.g., 16.2½; Nat, b.g., 16.2, 6 years; exhibited by Wm. Hendrie, Hamilton.

HORSES IN HARNESS.

Judges: Wm. West, Shelburne, Vt.; R. P. Stericker, West Orange, N.Y.

MARE OR GELDING OVER 14 HANDS 1 INCH AND NOT EXCEEDING 15 HANDS. TO BE SHOWN TO A GIG, CART OR PHAETON.

1st. Sparkle, b.m., 14.3, 7 years; exhibitor, Mrs. A. Beck, London.
2nd. The Bishop, br.g., 15; exhibitor, B. F. Gregory, Toronto.
3rd. His Highness, br.g., 15; exhibitors, G. Pepper & Co., Toronto.

MARE OR GELDING OVER 15 HANDS AND NOT EXCEEDING 15 HANDS 2 INCHES. TO BE SHOWN TO A GIG, CART OR PHAETON.

1st. The Empress, b.m., 15.1½, 7 years; exhibitor, Crow & Murray, Toronto.
2nd. Creighton, b.g.; exhibitors, G. Pepper & Co., Toronto.
3rd. Gay Boy 2nd, b.g., 15.1½, 5 years; exhibitor, A. Yeager, Simcoe.

MARE OR GELDING OVER 15 HANDS 2 INCHES AND NOT EXCEEDING 16 HANDS. TO BE SHOWN TO A GIG, CART OR PHAETON.

1st. New Finish, b.g., 15.2¼, 4 years; exhibitor, A. Yeager, Simcoe.
2nd. Lady Elgin, b.m., 15.2½, 6 years; exhibitor, Mrs. A. Beck, London.
3rd. The Governor-General, b.g., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.

MARE OR GELDING OVER 16 HANDS. TO BE SHOWN TO A GIG, CART OR PHAETON.

1st. Montrose, ch.g., 16.1, 6 years; exhibitor, J. J. Dixon, Toronto.
2nd. King Bee, ch.g.; exhibitors, G. Pepper & Co., Toronto.
3rd. Helen McGregor, blk.m., 16.1, 6 years; exhibitor, A. A. White, Aoton.

PAIR OF HORSES, MARES OR GELDINGS NOT EXCEEDING 15 HANDS 2 INCHES. TO BE SHOWN TO A FOUR-WHEELED VEHICLE.

1st. Show Girl, b.m., 15.1½, 7 years; The Empress, b.m., 15.1½, 7 years; exhibitors, Crow & Murray, Toronto.
2nd. Creighton, b.g.; Creighton, b.g.; exhibitors, G. Pepper & Co., Toronto.
3rd. Gay Boy 2nd, br.g., 15.1½, 5 years; Chorus Girl, bm., 15.1½, 4 years; exhibitor, A. Yeager, Simcoe.

PAIR OF HORSES, MARES OR GELDINGS OVER 15 HANDS 2 INCHES AND NOT EXCEEDING 16 HANDS. TO BE SHOWN TO A FOUR-WHEELED VEHICLE.

1st. Lady Elgin, b.m., 15.2½, 6 years; Lord Aylmer, b.g., 15.2½, 5 years; exhibitor, Mrs. A. Beck, London.
2nd. The Governor-General, b.g., 15.2½, 6 years; Her Excellency, b.m., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.
3rd. New Finish, b.g., 15.2½, 4 years; Kitty Clover, b.m., 15.2½, 4 years; exhibitor, A. Yeager, Simcoe.

PAIR OF HORSES, MARES OR GELDINGS OVER 16 HANDS. TO BE SHOWN TO A FOUR-WHEELED VEHICLE.

1st. Helen McGregor, blk.m., 16.1, 6 years; Perthshire, blk.g., 16.1, 5 years; exhibitor, A. A. White, Acton.
2nd. High, b.g., 16.1, 5 years; High Tide, b.g., 16.2, 6 years; exhibitor, J. W. Fairweather, Toronto.
3rd. Lady Gay, d.b.m., 16.0¼, 5 years; Lady Woodland, br.m., 16.0¼, 4 years; exhibitor, R. H. Davies, Toronto.

AMATEURS ONLY. SINGLE HORSES, GELDINGS OR MARES, NOT UNDER 15 HANDS 2 INCHES. To be shown to a gig or dog-cart and driven by the exhibitor. Horses to count 60 per cent. Vehicle and harness 40 per cent. The entire exhibit to have been the bona fide property of exhibitor at least one month before the closing of entries.

1st. Montrose, ch.g., 16.1, 6 years; exhibitor, J. J. Dixon, Toronto.
2nd. The Governor-General, b.g., 15.2½, 6 years; exhibtior, W. A. Young, M.D., Toronto.

AMATEURS ONLY. PAIR OF HORSES, GELDINGS OR MARES, NOT UNDER 15 HANDS. To be shown to T cart, mail Stanhope, spider phaeton, or other vehicle suitable for a gentleman's private use and to be driven by the exhibitor. Horses to count 50 per cent., and to be practically sound, with good manners; carriages 30 per cent.; harness 10 per cent.; servant's liveries, etc., 10 per cent. The entire exhibit to have been the bona fide proprty of exhibitor at least one month before the closing of entries.

1st. The Governor-General, b.g., 15.2½, 6 years; Her Excellency, b.m., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.
2nd Sunshine, ch.m., 15.3, 5 years; Happiness, ch.m., 15.3, 5 years; exhibitor, Capt. J. J. Grafton, Dundas.

AMATEURS ONLY. SINGLE HORSES, GELDINGS OR MARES, ANY HEIGHT. To be shown to a Victoria, Cabriolet or Brougham. Horses to count 50 per cent., and to be practically sound, with good manners; carriage 30 per cent.; harness 10 per cent.; servant's liveries, etc., 10 per cent. The entire exhibit to be the bona fide property of the exhibitor at least one month before the closing of entries, and to have been in use by the exhibitor and his family for the purpose intended.

1st. The Governor-General, b.g., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.
2nd. Montrose, ch.g., 16.1, 6 years; exhibitor, J. J. Dixon, Toronto.

FOR BEST AND BEST APPOINTED SINGLE VICTORIA, CABRIOLET OR BROUGHAM. Carriage to count 40 per cent., harness 30 per cent., servants' liveries 30 per cent. The exhibit to be the bona fide property of the exhibitor at least one month before closing of entries.

1st. Montrose, ch.g., 16.1, 6 years; exhibitor, J. J. Dixon, Toronto.

AMATEURS ONLY. PAIR OF HORSES, GELDINGS OR MARES, ANY HEIGHT. To be shown to a Victoria, Cabriolet or Brougham. Horses to count 50 per cent. and to be practically sonnd and with good manners. Carriage 30 per cent.; harness 10 per cent.; servants' liveries, etc., 10 per cent. The entire exhibit to be the bona fide property of the exhibitor at least one month before the closing of entries, and to have been in use by the exhibitor and his family for the purposes intended.

1st. The Governor-General, b.g., 15.2½, 6 years; Her Excellency, b.m., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.
2nd. Castor, b.g., 15.3, 6 years; Pollux, b.g., 15.3, 6 years; exhibitor, Chas. Boeckh, Toronto.

FOR BEST AND BEST APPOINTED DOUBLE VICTORIA, CABRIOLET OR BROUGHAM. Vehicle to count 40 per cent., harness 30 per cent., servants' liveries 30 per cent. The exhibit to be the bona fide property of exhibitor at least one month before closing of entries.

1st. The Governor-General, b.g., 15.2½, 6 years; Her Excellency, b.m., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.

DEALERS ONLY. PAIR OF HORSES, GELDINGS OR MARES, NOT UNDER 15 HANDS. To be shown to a T cart, mail Stanhope, spider phaeton, or other suitable vehicle. Horses to count 75 per cent.; appointments 25 per cent. Horses to have good conformation, quality and manners. To be the property of the exhibitor, who must be the owner at the time of making the entries.

1st. Creighton, b.g.; Creighton, b.g.; exhibitors, G. Pepper & Co., Toronto.
2nd. The Squire, br.g., 15.2, 7 years; The Bishop, br.g., 15, 6 years; exhibitor, B. F. Gregory, Toronto.

MARE OR GELDING, NOT EXCEEDING 15 HANDS 2 INCHES. Bred in Canada; that has not won a first prize singly or in combination at any recognized Horse Show or Exhibition prior to being shown in this class. To be shown to gig, cart or phaeton.

1st. Lord Derby, b.g., 15.1½, 4 years; exhibitor, A. Yeager, Simcoe.
2nd. Lady Jubilee, ch.m., 15.2, 5 years; exhibitor, A. D. Harris, Toronto.
3rd. Woodlands Queen, br.m., 15.1½, 4 years; exhibitor, Dr. B. Gollop, Milton.

MARE OR GELDING OVER 15 HANDS 2 INCHES. Bred in Canada; that has not won a first prize singly or in combination at any recognized Horse Show or Exhibition prior to being shown in this class. To be shown to gig, cart or phaeton.

1st. Morning Star, b.g., 15.2½, 4 years; exhibitors, Crow & Murray, Toronto.
2nd. Helen McGregor, blk.m., 16.1, 6 years; exhibitor, A. A. White, Acton.
3rd. Success, b.g., 15.3; exhibitor, A. Yeager, Simcoe.

HORSE AND RUNABOUT. For amateurs only. Mare or Gelding, to be shown to a runabout and driven by owner. Horse to count 50 per cent., appointments 50 per cent. The horse should have conformation, style, all-round action, pace and good manners. Horses must stand without being held.

1st. Sparkle, b.m., 14.3, 7 years; exhibitor, Mrs. A. Beck, London.
2nd. Gay Boy, b.g., 15.2, 7 years; exhibitor, J. J. Dixon, Toronto.

MARE OR GELDING, SUITABLE FOR A LADY TO DRIVE. To be shown to an appropriate vehicle by a lady. Horse to count 60 per cent., appointments 40 per cent. Dealers excluded.

1st. The Governor-General, b.g., 15.2½, 6 years; exhibitor, W. A. Young, M.D., Toronto.
2nd. Gay Boy, b.g., 15.2, 7 years; exhibitor, J. J. Dixon, Toronto.

CHAMPION CLASS, OPEN TO MARES OR GELDINGS HAVING TAKEN A FIRST PRIZE IN SINGLE HARNESS AT THIS OR ANY PREVIOUS RECOGNIZED HORSE SHOW.

1st. The Empress, b.m., 15.1½, 7 years; exhibitors, Crow & Murray, Toronto.

CHAMPION HIGH STEPPER. KING EDWARD HOTEL CHALLENGE CUP. MARE OR GELDING, CANADIAN BRED. Conformation and style of going as well as high action to be considered. To be shown to a gig or dog cart. Name of sire must accompany entry.

1st. Montrose, ch.g., 16.1, 6 years; exhibitor, J. J. Dixon, Toronto.
2nd. New Finish, b.g., 15.2½, 4 years; exhibitor, A. Yeager, Simcoe.
3rd. Lord Aylmer, b.g., 15.3½, 5 years; exhibitor, Mrs. A. Beck, London.

TANDEMS.

HARNESS TANDEMS, MARES OR GELDINGS.

1st. Exhibitors, G. Pepper & Co., Toronto.
2nd. Exhibitors, Crow & Murray, Toronto.
3rd. Exhibitor, Mrs. A. Beck, London.

HARNESS TANDEMS, MARES OR GELDINGS. To be owned and driven by an amateur and have been the bona fide property of the exhibitor at least one month before closing of entries.

1st. Exhibitor, Mrs. A. Beck, London.
2nd. Exhibitor, W. A. Young, M.D., Toronto.

FOUR-IN-HANDS.

1st. Exhibitor, A. Yeager, Simcoe.
2nd. Exhibitors, Crow & Murray, Toronto.
3rd. Exhibitors, G. Pepper & Co., Toronto.

BEST SADDLE AND HARNESS HORSE, MARE OR GELDING, 15 HANDS AND OVER. To be first shown in an appropriate vehicle and judged as a horse best suited for harness purposes, the horse to be unharnessed and to be shown and judged under saddle.

Judges: Col. Bridge, C.B., and Major Drage, London, Eng.

1st. Montrose, ch.g., 16.1, 6 years; exhibitor, J. J. Dixon, Toronto.
2nd. Othello, ch.g., 15.2, 6 years; exhibitor, Mrs. J. J. Dixon, Toronto.
3rd. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton

MARE OR GELDING OVER 14 HANDS 2 INCHES AND NOT EXCEEDING 15 HANDS 2 INCHES

1st. Othello, ch.g., 15.2, 6 years; exhibitor, Mrs. J. J. Dixon, Toronto.
2nd. My Lady, br.m.; exhibitors, G. Pepper & Co., Toronto.
3rd. Glendale, ch.g.; exhibitors, G. Pepper & Co., Toronto.

MARE OR GELDING, OVER 15 HANDS 2 INCHES, UP TO CARRYING FROM 160 LBS. TO 190 LBS

1st. Cingalee, ch.m., 15.3, 5 years; exhibitor, Jos. Kilgour, Toronto.
2nd. Cloth of Gold, ch.g., 15.1, 5 years; exhibitor, Alf. Rogers, Hamilton.
3rd. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton.

MARE OR GELDING, OVER 15 HANDS 2 INCHES, UP TO CARRYING 190 LBS. AND OVER.

1st. Bro. Wilson, b.g.; exhibitors, G. Pepper & Co., Toronto.
2nd. Ballinard, b.g., 15.3, 6 years; exhibitor, L. Meredith, London.
3rd. King Bee, ch.g.; exhibitors, G. Pepper & Co., Toronto.

LADY'S SADDLE HORSE, NOT UNDER 14 HANDS 3 INCHES. TO BE RIDDEN BY LADY.

1st. Othello, ch.g., 15.2, 6 years; exhibitor, Mrs. J. J. Dixon, Toronto.
2nd. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton.
3rd. Cingalee, ch.m., 15.3, 5 years; exhibitor, Jos. Kilgour, Toronto.

AMATEURS ONLY. MARE OR GELDING, NOT UNDER 15 HANDS, UP TO CARRYING 160 LBS. To have been the bona fide property of exhibitor at least one month before closing of entries. To be ridden by an amateur.

1st. Cingalee, ch.m., 15.3, 5 years; exhibitor, Jos. Kilgour, Toronto.
2nd. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton.

CHAMPIONSHIP—BEST SADDLE HORSE.

1st. Othello, ch.g., 15.2, 6 years; exhibitor, Mrs. J. J. Dixon, Toronto.

HUNTERS AND JUMPERS.

Judges: Col. Bridge, C.B., and Major Drage, London, Eng.

QUALIFIED HUNTERS (HEAVYWEIGHT), UP TO CARRYING 190 LBS. AND OVER. Conformation and quality to count 60 per cent., performances over fences to count 40 per cent. To carry at least 180 lbs.

1st. Black Knight, blk.g., 16.1, 5 years; exhibitor, Hon. A. Beck, London.
2nd. Rupert, blk.g.; exhibitor, E. H. Weatherbee, New York.

QUALIFIED HUNTERS (MIDDLEWEIGHT), UP TO CARRYING FROM 165 LBS. TO 190 LBS. TO HOUNDS. Conformation and quality to count 60 per cent., performances over fences to count 40 per cent. To carry at least 165 lbs.

1st. Lady Mandal, br.m., 15.3½, 6 years; exhibitor, Hon. A. Beck, London.
2nd. Donation, ch.m., 16, 5 years; exhibitor, H. B. Macdougall, Montreal.
3rd. Diana, b.m., 15.3½; exhibitor, Jos. Kilgour, Toronto.

GREEN HUNTERS (HEAVYWEIGHT), UP TO CARRYING 190 LBS. AND OVER TO HOUNDS. Conformation and quality to count 60 per cent., performances over fences to count 40 per cent. To carry at least 180 lbs.

1st. Bro. Wilson, b.g.; exhibitors, G. Pepper & Co., Toronto.
2nd. Grand Master, b.g., 16, 4 years; exhibitor, Hon. A. Beck, London.
3rd. Sweet Briar, b.m., 16, 5 years; exhibitors, Crow & Murray, Toronto.

GREEN HUNTERS (MIDDLEWEIGHT), UP TO CARRYING FROM 165 LBS. TO 190 LBS. TO HOUNDS. Conformation and quality to count 60 per cent., performances over fences to count 40 per cent. To carry at least 165 lbs.

1st. Wanderoo, b.g., 15.3, 6 years; exhibitor, A. A. Reinhardt, Toronto.
2nd. Merryfield, b.m., 15.3½, 4 years; exhibitor, Hon. A. Beck, London.
3rd. All Aglow, roan m., 16, 5 years; exhibitor, J. W. Rogers, Toronto.

LIGHTWEIGHT HUNTERS, OPEN TO BOTH GREEN AND QUALIFIED HORSES, UP TO CARRYING FROM 150 TO 165 LBS. TO HOUNDS. Conformation and quality to count 60 per cent., performances over fences 40 per cent. To carry at least 150 lbs.

1st. Gold Dust, ch.g., 15.2½, 4 years; exhibitor, Alf. Rogers, Hamilton.
2nd. Lady Eileen, b.m., 15.3, 5 years; exhibitor, W. R. Miller, Montreal.
3rd. Grand Dee, b.g., 15.3, 6 years; exhibitor, John Gartshore, Hamilton.

JUMPING. OPEN TO ALL. PERFORMANCES OVER FENCES ONLY TO COUNT.

1st. Senator, ch.g.; exhibitor, E. H. Weatherbee, New York.
2nd. Pearl, b.m.; exhibitor, E. H. Weatherbee, New York.
3rd. Rupert, blk.g.; exhibitor, E. H. Weatherbee, New York.

FOR THE BEST PERFORMANCE OVER SIX JUMPS; 2 AT 4 FEET, 2 AT 4 FEET 6 INCHES, 2 AT 5 FEET, CARRYING NOT LESS THAN 140 LBS

1st. Pearl, b.m.; exhibitor, E. H. Weatherbee, New York.
2nd. Hussar, ch.g., 16, 6 years; exhibitor, S. D. Robinson, Hamilton.
3rd. San Toy, b.m.; exhibitor, E. H. Weatherbee, New York.

AMATEURS ONLY. FOR HEAVYWEIGHT HUNTERS, UP TO CARRYING 190 LBS. TO HOUNDS. Owned and ridden by amateurs, and the bona fide property of exhibitor at least one month prior to closing of entries. Conformation and quality to count 50 per cent., performances over fences to count 50 per cent.

1st. Grand Master, b.g., 16, 4 years; exhibitor, Hon. A. Beck, London.
2nd. Lady Avice, b.m., 16, 5 years; exhibitor, Jos. Kilgour, Toronto

AMATEURS ONLY. FOR MIDDLEWEIGHT HUNTERS UP TO CARRYING 165 TO 190 LBS. TO HOUNDS. Owned and ridden by amateurs, and the bona fide property of exhibitor at least one month prior to closing of entries. Conformation and quality to count 50 per cent., performances over fences to count 50 per cent.

1st. Cloth of Gold, ch.g., 16.1, 5 years; exhibitor, Alf. Rogers, Hamilton.
2nd. Grand Lodge, br.g., 16.1, 5 years; exhibitor, Hon. A. Beck, London.

AMATEURS ONLY. FOR LIGHTWEIGHT HUNTERS, UP TO CARRYING FROM 150 TO 165 LBS. TO HOUNDS. Owned and ridden by amateurs, and the bona fide property of exhibitor at least one month prior to closing of entries. Conformation and quality to count 50 per cent., performances over fences to count 50 per cent.

1st. Lady Lightfoot, ch.m., 15.3, 5 years; exhibitor, Major G. R. Hooper, Montreal.
2nd. Grand Dee, b.g., 15.3, 6 years; exhibitor, John Gartshore, Hamilton.

TORONTO HUNT PLATE. Open to horses owned by members of a recognized Hunt and ridden in pink by owner. Dealers excluded. Conformation and quality to count 40 per cent., performances over fences 60 per cent.

1st. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton.

LADIES' HUNTERS, UP TO CARRYING 150 LBS. TO HOUNDS. Conformation and quality to count 50 per cent., performance 50 per cent. To be owned by a member of a recognized Hunt, and ridden by a lady.

1st. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton.
2nd. Loraine, b.m., 15.2, 7 years; exhibitor, J. E. Osborne, Toronto.

HIGH JUMP. OPEN TO ALL. Trial will commence at 5 feet and jump will be raised 6 inches at a time up to and including 6 feet, after which it will be raised 4 inches at a time. Only three trials will be allowed to horses at each height. A refusal within the wings shall count the same as if the horse had knocked off the top bar. The top bar will be secured by twine.

1st. Pearl, b.m.; exhibitor, E. H. Weatherbee, New York.
2nd. Rupert, blk.g.; exhibitor, E. H. Weatherbee, New York.
3rd. Senator, ch.g.; exhibitor, E. H. Weatherbee, New York.

CHAMPION CLASS—BEST HUNTER.

1st. Grand Master, b.g., 16, 4 years; exhibitor, Hon. A. Beck, London.

ROADSTERS.

Judges: J. Sinclair, V.S., Cannington; R. Graham, Claremont.

MARE OR GELDING TROTTER, NOT EXCEEDING 15.2 HANDS.

1st. Daisy Buckner, b.m., 15-2, 5 years; exhibitor, Jas. Crow, Toronto.
2nd. Lady Furocia, blk.m., 15.1½, 7 years; exhibitor, R. J. Henderson, Toronto.
3rd. Ida Bars, b.m., 15.1, 4 years; exhibitor, H. H. James, Hamilton.

MARE OR GELDING TROTTER OVER 15.2 HANDS.

1st. Rhea W., b.m., 15.3, 10 years; exhibitor, Miss K. L. Wilks, Galt.
2nd. Bryson Boy, gr.g., 15.3, 7 years; exhibitors, Beattie Bros., Wingham.
3rd. Gussy Scott, b.m., 15.2½, 4 years; exhibitor, J. J. Burns, Toronto.

PAIR OF MARES OR GELDINGS, NOT EXCEEDING 15.2 HANDS.

1st. Wild Duchess, blk.m., 15.1½, 7 years; Lady Furocia, blk.m., 15.1½, 7 years; exhibitor, R. J. Henderson, Toronto.
2nd. Thelma, b.m., 15.1, 6 years; Zella, b.m., 15.1, 6 years; exhibitor, J. D. McGibbon, Milton.
3rd. Lady Cresceus, ch.m., 15.1½, 7 years; Miss Letty, ch.m., 15.1½, 4 years; exhibitor, Miss K. L. Wilks, Galt.

PAIR OF MARES OR GELDINGS, OVER 15.2 HANDS.

1st. Rhea W., b.m., 15.3, 10 years; Easter Belle, b.m., 15.3, 7 years; exhibitor, Miss K. L. Wilks, Galt.
2nd. Riley B., b.g., 15.2½, 5 years; Bay Cloud, b.g., 15.3, 6 years; exhibitor, Hugh Scott, Toronto.
3rd. Shady, b.g., 16, 5 years; Chimes, b.g., 16, 5 years; exhibitor, D. E. Widener, Simcoe.

CHAMPIONSHIP—BEST ROADSTER, TROTTER OR PACER, ANY AGE.

1st. Rhea W., b.m., 15.3, 10 years; exhibitor, Miss K. L. Wilks, Galt.

MARE OR GELDING PACER, NOT EXCEEDING 15.2 HANDS.

1st. Gallagher, b.g., 15.1, 7 years; exhibitor, Geo. McMillan, Calgary.
2nd. Jingle Bell, b.m., 9 years; exhibitor, Robt. W. Davies, Toronto.
3rd. Bertha W., b.m., 15.1, 6 years; exhibitor, P. Maher, Toronto.

MARE OR GELDING, PACER, OVER 15.2 HANDS.

1st. Gerty C., b.m., 15.2½, 7 years; exhibitor, John Dowden, Toronto.
2nd. Little Boy, ch.g., 15.3, 5 years; exhibitors, Snow Bros., Toronto.
3rd. Planet, d.ch.g., 15.2½, 4 years; exhibitor, A. W. Holman, Toronto.

PONIES.

Judges: Wm. West, Shelburne, Vt.; W. J. Stark, Stouffville.

STALLION, TO BE SHOWN ON LINE.

1st. Miss Geary, br.m., 10, 4 years; exhibitor, H. D. Bailey, Toronto.
1st. Black Diamond (imp.) black, 13.1, 5 years; exhibitor, Mrs. C. Wilmot, Port Hope.
2nd. Darcy, black and white, 11.0½, 9 years; exhibitor, W. H. Smith, Toronto.

SINGLE PONY IN HARNESS, MARE OR GELDING, 12 HANDS 1 INCH AND UNDER.

2nd. Ginger, ch.m., 10.3, 9 years; exhibitor, Denton Massey, Toronto.
3rd. Jennie, br.m., 11, 10 years; exhibitor, Jess Applegath, Toronto.

SINGLE PONY IN HARNESS MARE OR GELDING, OVER 12 HANDS 1 INCH UP TO 13 HANDS 1 INCH.

1st. San Toy, b.m., 13.4 years; exhibitor, W. M. Baker, Woodstock.
2nd. Lady Constance, ch.m., 12.2, 7 years; exhibitor, G. H. Gooderham, Toronto.
3rd. Lady Isabel, ch.m., 12.2, 6 years; exhibitor, G. H. Gooderham, Toronto.

SINGLE PONY IN HARNESS, MARE OR GELDING, OVER 13 HANDS 1 INCH, UP TO 14 HANDS 1 INCH

1st. Princess Nellie, b.m., 14.0½, 6 years; exhibitor, Miss R. L. Massey, Toronto.
2nd. Colonel, ch.g., 14, 9 years; exhibitor, W. H. Smith, Toronto.
3rd. Minnie, b.m., 13.2½, 5 years; exhibitor, Miss E. Mead, Norway.

PAIR OF PONIES IN HARNESS, MARES OR GELDINGS, OVER 12.1 TO 14.1 HANDS. PONIES COUNT 60 PER CENT., OUTFIT 40 PER CENT.

1st. Lady Constance, ch.m., 12.2, 7 years; Lady Isabel, ch.m., 12.2, 6 years; exhibitor, G. H. Gooderham, Toronto.
2nd. Lucy, ch.m., 13, 6 years; Grace, ch.m., 13.4 years; exhibitor, G. V. Foster, Toronto.

BEST BOY RIDER 14 YEARS OF AGE AND UNDER, ON PONY. This class is for amateur only, and each contestant must be properly costumed.

1st. Exhibitor, Wilfrid Davies, Toronto.
2nd. Exhibitor, Melville R. Davies, Toronto.
3rd. Exhibitor, Carl Roesler, Toronto.

BEST SADDLE PONY, MARE OR GELDING, 14 HANDS 1 INCH AND UNDER. To be shown at a walk, trot and canter. To have conformation and manners. Conformation to count 40 per cent., manners 60 per cent.

1st. The Sport, gr.g., 14.1, 7 years; exhibitors, Burns & Sheppard, Toronto.
2nd. The Weasel, b.g., 14.1, 6 years; exhibitor, Chas. B. Boeckh, Toronto.
3rd. The Cat, b.m, 14.1, 7 years; exhibitor, D. W. Baxter, Toronto.

BEST PERFORMANCE OVER 3 JUMPS OF PONY 14.1 HANDS AND UNDER.

1st Creta, blk.m., aged; exhibitor, Norman Davies, Toronto.
2nd. Flora, b.m., aged; exhibitor, Melville Davies, Toronto.
3rd. The Cat, b.m., 14.1, 7 years; exhibitor, D. W. Baxter, Toronto.

BEST COMBINATION PONY, MARE OR GELDING.

1st. Strawberry Blonde, roan m., 14.0½, 5 years; exhibitor, Mrs. C. Wilmot, Port Hope.

BEST PONY, STALLION, MARE OR GELDING, NOT EXCEEDING 14 HANDS 1 INCH, SIRED BY A REGISTERED HACKNEY STALLION, TO BE SHOWN IN HARNESS.

1st. Black Diamond, blk.s., 13.1, 5 years; exhibitor, Mrs. C. Wilmot, Port Hope.

PONY BROOD MARE, 14 HANDS 1 INCH AND UNDER, IN FOAL OR FOAL AT FOOT.

1st. Daisy, ch.m., 12.3, 7 years; exhibitor, H. G. Doyle, Woodstock.
2nd. Lady Grey, gr.m., 12.3, 7 years; exhibitor, H. M. Robinson, Toronto.
3rd. Dolly Varden, ch.m., 13.0½, 6 years; exhibitor, J. A. Mills, Toronto.

CHAMPIONSHIP CLASS.—BEST PONY IN HARNESS, UNDER SADDLE OR ON THE LINE, NOT EXCEEDING 14 HANDS 1 INCH.

1st. San Toy, b.m., 13, 4 years; exhibitor, W. M. Baker, Woodstock.

POLO PONIES.

Judge: Seward Cary, Buffalo, N.Y.

PONIES UP TO CARRYING 155 LBS.

1st. T. K., b.g., 14, 8 years; exhibitor, Capt. E. T. Van Straubenzie, Stanley Barracks.
2nd. Tiny Tim, ch.g., 14.1½; exhibitor, Lt-Col. Stimson, Toronto.
3rd. Lady Jane, blk.m., 14.2, 7 years; exhibitor, A. O. Beardmore, Toronto.

PONIES UP TO CARRYING 185 LBS.

1st. Pinto, b.g., 14.1, 9 years; exhibitor, Campbell Meyers, M.D., Deer Park.
2nd. Queenie, roan m., 14.2, 7 years; exhibitor, Lt.-Col. V. A. S. Williams, Stanley Barracks.
3rd. Arab, b.g., 14.2, 8 years; exhibitor, Campbell Meyers, M.D., Deer Park.

FOR BEST STRING OF TWO POLO PONIES, ANY WEIGHT, BELONGING TO ONE MEMBER OF A RECOGNIZED CANADIAN POLO CLUB, AVERAGE EXCELLENCE OF PONIES TO COUNT.

1st. Pinto, b.g., 14.1, 9 years; Dynamite, ch.g., 14.2, 7 years; exhibitor, Campbell Meyers, M.D., Deer Park.
2nd. Queenie, roan m., 14.2, 7 years; Fly, b.m., 14.1½, 6 years; exhibitor, Lt.-Col. V. A. S. Williams, Stanley Barracks.
2nd. Tiny Tim, ch.g., 14.1¾; Goo Goo, b.g.; exhibitor, Lt.-Col. Stimson, Toronto.

MARE OR GELDING, TO BE SHOWN IN SINGLE HARNESS AND DELIVERY WAGON, ACTUALLY AS USED IN LOCAL DELIVERIES. Horse to count 50 per cent., wagon and equipment 50 per cent. Horse to have been owned and actually used in delivery by exhibitor two months before date of exhibition. To be driven by exhibitor or bona fide employee.

1st. Golden Rod, ch.g., 15.3½, 4 years; exhibitors, J. W. T. Fairweather & Co., Toronto.
2nd. Flashlight, br.g., 16, 7 years; exhibitor, Jess Applegath, Toronto.
3rd. Princess, ch.m., 15.2, 5 years; exhibitor, Parisian Laundry Co., Toronto.

MARE OR GELDING, TO BE SHOWN IN SINGLE HARNESS AND BUTCHER'S CART, AS ACTUALLY USED BY OWNER IN LOCAL DELIVERIES FOR AT LEAST TWO MONTHS PRIOR TO THE EXHIBITION. Horse to count 50 per cent., cart and equipment 50 per cent. To be driven by exhibitor or bona fide employee.

1st. Brownie, br.m., 15.2, 8 years; exhibitor, Geo. Clayton, Toronto.
2nd. Little Jack, br.g., 15.2, 7 years; exhibitors, T. Clayton & Sons, Toronto.
3rd. Florrie, br.m., 15.2, 4 years; exhibitor, F. N. Cates, Toronto.

BEST PERFORMANCE OF PROFESSIONAL PRIVATE COACHMAN IN LIVERY, WITH PAIR AND CARRIAGE.

1st. Jas. Braden, coachman for Capt. J. J. Grafton, Dundas.
2nd. Walter Douglas, coachman for W. D. Beardmore, Toronto.
3rd. H. Arnold, coachman for Mrs. E. Y. Eaton, Toronto.

HUNT CLUB CUP.—For three best horses representing a recognized Hunt or the Hamilton Riding Club. Horses must be qualified hunters or qualified under the rules of the Hamilton Riding Club and ridden by the master and two whips or by any three members in the Club uniform. Appointments and uniform to count 25 per cent.

1st. Montreal Hunt Club. Mr. McLennan's Team.

FOR BEST PAIR OF HORSES, MARES OR GELDINGS, NOT EXCEEDING 15.3, NEITHER OF WHICH HAS EVER WON A PRIZE OR RIBBON AT ANY RECOGNIZED HORSE SHOW OR EXHIBITION. Shown to a T cart, spider, mail phaeton or suitable vehicle.

1st. Prospect, br.g., 15.2½; Success, br.g., 15.3; exhibitor, A. Yeager, Simcoe.

THE GOVERNOR-GENERAL'S PRIZE.

Judges: Wm. Hendrie, Hamilton; Dr. And. Smith, Toronto; Dr. Rutherford, Ottawa.

BEST FOUR-YEAR-OLD CANADIAN-BRED GELDING OR MARE, SUITABLE FOR CAVALRY PURPOSES. NOT LESS THAN 15 HANDS AND NOT OVER 15 HANDS 3 INCHES, TO BE SIRED BY A THOROUGHBRED STALLION, SUCH SIRE TO BE APPROVED BY THE JUDGES.

1st. Gold Dust, ch.g., 15.2½, 4 years; exhibitor, Alf. Rogers, Hamilton.
2nd. Pretty Polly, br.m., 15.3, 4 years; exhibitor, Gordon J. Henderson, Hamilton.
3rd. Triumph, b.g., 15.2½, 4 years; exhibitor, Jos. Kilgour, Toronto.

HUNTERS AND JUMPERS.

OPEN CLASS. FOR HORSES UP TO CARRYING 180 LBS. AND OVER. TO CARRY AT LEAST 175 LBS.

1st. Grand Master, b.g., 16, 4 years; exhibitor, Hon. A. Beck, London.
3rd. Senator, ch.g.; exhibitor, E. H. Weatherbee, New York.
3rd. Westminster Belle, ch.m., 16.2, aged; exhibitor, Mrs. A. Beck, London.

OPEN CLASS. FOR HORSES UP TO CARRYING 150 TO 180 LBS. TO CARRY AT LEAST 150 LBS.

1st. Cloth of Gold, ch.g., 16.1, 5 years; exhibitor, Alf. Rogers, Hamilton.
2nd. Sir Robert, ch.g., 15.3, 5 years; exhibitor, Gordon J. Henderson, Hamilton.
3rd. Diana, b.m., 15.3½; exhibitor, Jos. Kilgour, Toronto.

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